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Institute Report No. 441

DTIC FLECTE JUL 3 0 1990 One Hundred Eighty Day Subchronic Oral Toxicity Study of Pyridostigmine Bromide in Rats

> (Volume 2 of 2) (Part 2)

Earl W. Morgan, DVM, MAJ, VC
Gary M. Zaucha, DVM, CPT, VC
Paul P. Waring, BS
Yvonne LeTellier, BS
Joel B. Seewald, BS, SPC
Charles B. Clifford, PhD, DVM, MAJ, VC
and
Don W. Korte, Jr., PhD, LTC, MSC

MAMMALIAN TOXICOLOGY BRANCH
DIVISION OF TOXICOLOGY

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One Hundred Eighty Day Subchronic Oral Toxicity Study of Pyridostigmine Bromide in Rats (Toxicology Series 253)--Morgan et al.

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This research was conducted in compliance with the "Guide for the Care and Use of Laboratory Animals," NIH Publication No. 85-23, as prepared by the Institute of Laboratory Animal Resources, National Research Council.

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Sprague-Dawley Rat, Acetylcholinesterase,				
Cholinesterase				
19. ABSTRACT (Continue on reverse if necessary and identify by block number)				
The 180-day subchronic oral toxicity of pyridostigmine bromide was	İ			
evaluated in male Sprague-Dawley rats. Pyridostigmine was administered in	the			
diet at dose levels of 0, 1, and 10 mg/kg/day daily, and 10 mg/kg/day 5 day	7S			
per week for 180 days. Following the 180-day dosing period, subgroups of	-			
animals from the control, 10 mg/kg/day, and 10 mg/kg/day 5 days/week groups	s			
were subjected to a 30-day recovery period during which the test compound were	was			
not administered. The addition of pyridostigmine to the diet resulted in				
dose-related decreases in plasma cholinesterase and erythrocyte				
acetylcholinesterase activity ranging from 25% to 63% and from 21% to 49%,				
respectively. The only toxic sign associated with the decrease in				
cholinesterase activity was increased startle reflex which was observed wit	th			
increased incidence among pyridostigmine-treated animals. Blood samples to				
at necropsy for hematological and serum chemistry analyses exhibited no				
20 DISTRIBUTION/AVAILABILITY OF ABSTRACT 21 ABSTRACT SECURITY CLASSIFICATION				
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19 (cont.) significant (p \leq 0.05) abnormalities that could be attributed to pyridostigmine after 180 days of dosing. Increases in aspartate aminotransferase, lactate dehydrogenase, and creatine phosphokinase were observed at Day 210, 30 days after withdrawal of the test compound, but the changes could not be attributed to compound administration/withdrawal. No compound-related changes in food or water consumption or body weights were observed, and no morphologic signs of pyridostigmine-induced toxicity were detected during necropsy or subsequent microscopic examination of the tissues. These findings indicate that pyridostigmine bromide, when administered for 180 days to rats at doses that produce up to 63% inhibition of cholinesterase activity, produces little subchronic toxicity other than that attributable to cholinesterase inhibition.

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Appendix L: INDIVIDUAL ANIMAL HISTORIES

DAY 180 SACRIFICE

Animal Number	Clinical Signs	Dates Observed Severity (1986/1987)
86D00517	Material, Red, Nose Irritable	Dec 27,28 Slight Dec 29-31, Jan 4-16 Jan 21-26,28, Feb 3,4
	Aggressive	Mar 11-14,22,May 2-4 Marked Jan 30,Feb 2,5-Mar 10 Mar 15-20,23-31
	Stain, Red, Nose	Apr 3-6 Market Feb 18 Slight
85D00532	Stain, Yellow, Perianal Alopecia, Front Legs Material, Dark, Nose Irritable	Dec 12 Jan 19-29 Jan 22,29 Jan 23-27,Feb 2,3 Feb 12-17,19-25 Mar 2-6,19,20,23-25
	Stain, Brown, Leg Stain, Red, Nose Material, Red, Neck Aggressive Stain, Red, Eye Material, Red, Eye	Apr 6,7,21 Moderat Feb 2,3 Sligh Feb 18 Sligh Mar 4 Sligh Mar 7-16 Marke Mar 30-Apr 6 Moderat Apr 8-15 Moderat
86D00538	Stain, Red, Nose Vocalization Aggressive	Feb 7,8 Moderat Mar 19 Sligh Mar 20 Sligh
86D00558	Inactive Incr. Startle Reflex Material, Red, Nose Material, Dark, Nose Stain, Red, Nose Irritable	Nov 7, Jan 17 Sligh Nov 13, Jan 2 Sligh Dec 3, Apr 5, 6 Sligh Dec 17, 24, 25, Mar 25 Moderat Jan 1, 4, 28, Feb 10 Sligh Jan 6, 13, 20, Feb 3 Feb 13-18, 23-27 Mar 2, 3, 5, 6, 19, 20
	Rough Coat	Apr 6,7 Sligh Jan 14-24,29-Feb 3 Moderat

DAY 180 SACRIFICE

Animal Number	Clinical Signs	Dates Observed (1986/1987)	Severity
86D00558	Stain, Dark, Nose	Jan 29,30,Feb 25	
(cont.)	Stain Bod For	Mar 9,10	Slight
	Stain, Red, Ear Conjunctivitis	Feb 4	Slight
	Stain, Red, Eye	Feb 5-21	Moderate
	Stain, Brown, Nose	Feb 5-8,10-16 Feb 9	Moderate
	ocarn, brown, Nose	reb 9	Slight
86D00576	Irritable	Nov 17,20, Jan 6,27	,
		Mar 25,Apr 6-9	Moderate
	Rough Coat	Jan 19,20	Slight
	Alopecia, Hind Leg	Feb 2-12	Slight
	Stain, Red, Nose	Feb 5,20	Slight
	Aggressive	Feb 6-8, Mar 26-Apr	2 Slight
	Stain, Dark, Nose	Mar 9-11	Slight
86D00578	Rough Coat	Jan 19,20	Slight
	Stain, Red, Nose	Feb 7,11,18,25,26	Moderate
	Irritable	Mar 13-16, May 5-7	Slight
	Material, Red, Nose	Mar 23	Slight
	Stain, Brown, Nose	Mar 25	
	, , 1000	Mar 25	Slight
86D00579	Irritable	Nov 18	Slight
	Material, Red, Nose	Dec 3	Slight
	Material, Dark, Nose	Dec 17,19,22,25,27	,
		Jan 26, Mar 11	Slight
	Stain, Red, Nose	Jan 10,18,21,29	
		Feb 5	Slight
	Stain, Dark, Nose	Feb 12	Slight
	Stain, Orange, Nose	Feb 23,24	Slight
	Aggressive	Mar 23-25	Slight
06500504			0119
86D00584	Irritable	Nov 12,14,18	
		Dec 6,11,12,24,28-	30
		Jan 5-7,11,14,15	
		Jan 26-28, Feb 2-6	
		Feb 8, 9, 11, 12, 18, 2	4
		Feb 27, Mar 3, 18-21	Moderate

DAY 180 SACRIFICE

Animal Number	Clinical Signs	Dates Observed Severity (1986/1987)
86D00584 (cont.)	Irritable	Mar 23,25-27 Mar 30-Apr 3,28,29 May 2-6 Moderate
	Material, Red, Nose Material, Dark, Nose Alopecia, Front Legs	Dec 6 Slight Jan 26,27,Feb 13 Slight Jan 29,Feb 11-20
	Stain, Brown, Nose Stain, Red, Nose Scab, Front Leg	Feb 27-May 7 Marked Slight Feb 5-8,27-Mar 1 Slight Mar 9-16 Slight
	Stain, Brown, Legs Aggressive	Apr 5-May 7 Slight Apr 5,6,13-27,30 Moderate
86D00715	Irritable Material, Dark, Nose Stain, Red, Nose Material, Red, Eye Material, Dark, Eye Material, Red, Nose Conjunctivitis Aggressive	Dec 23, Jan 6, 10 Feb 17, 18, Apr 5 Moderate Dec 24, Feb 7, 21, 22 Slight Jan 1, 2, 9, 14 Slight Feb 4, 5 Moderate Feb 9, 23-25, Mar 13-21 Slight Feb 12, 13 Slight Feb 22 Slight Apr 4 Slight
86D00725	Stain, Red, Nose Stain, Red, Back Irritable	Jan 2,3,11,Mar 9,10 Slight Jan 3 Slight Jan 4,10,12,13,26,27 Jan 29,30,Feb 2-9,11 Feb 20-22,Mar 7,8 Mar 18-20,23-27 Apr 5-9,20-May 4 Marked
	Stain, Red, Legs Stain, Brown, Legs Rough Coat Alopecia, Front Legs	Jan 11,18-21 Moderate Jan 22-Feb 5,7-May 7 Moderate Feb 5 Slight Feb 19-Mar 3,8-29
	Aggressive Material, Red, Nose Incr. Startle Reflex	Apr 15-19 Slight Mar 9-16 Slight Mar 15,16,22-24 Slight Mar 30-Apr 1 Slight

DAY 210 SACRIFICE

Animal Number	Clinical Signs	Da	tes Observed S (1986/1987)	everity
86D00540	Material, Red, Nose Irritable	Dec	1 29,Mar 5,6,19,20	Slight
	Stain, Dark, Foot	Jan		
	Material, Dark, Nose	Jan	29	Slight
	Stain, Brown, Nose	Feb	13	Slight
	Stain, Red, Nose	Mar	5, May 24	Slight
	Stain, Red, Eye	Mar		Slight
	Aggressive	May	7-10,22,23,25	Slight
86D00585	Stain, Brown, Perianal	Nov	14	Slight
	Incr. Startle Reflex		20,Dec 25	Slight
	Irritable	Jan	28, Feb 2, 26	_
		Mar	18-20,25	Sligh*
	Stain, Red, Nose	Mar	8	Slight
86D00614	Material, Red, Nose	Dec	24,25,Feb 4,23	
	, ,	Feb		Moderate
	Material, Eye	Jan	7	Slight
	Stain, Red, Nose		9,10,21,Apr 1	
		May		Slight
	Rough Coat		19-28	Slight
	Material, Dark, Nose	Jan	26-28, Feb 2, 7, 11	
	Irritable		10, Mar 13-16	Slight
	Aggressive	Apr	4, May 2-4, 7-23	Slight
86D00647	Material, Red, Nose	Dec	3	Slight
	Irritable	Jan	5,6,8,9,Feb 5-8	_
		Feb	20-22, Mar 7, 18-2	0
			23-31,Apr 6,7	Marked
	Rough Coat		6-9	Slight
	Stain, Red, Nose		21,Mar 7	Slight
	Aggressive	Apr	5	Slight

DAY 210 SACRIFICE

Animal Number	Clinical Signs	Dates Observed Severity (1986/1987)
86D00665	Material, Red, Nose Incr. Startle Reflex Material, Dark, Nose Irritable	Dec 7 Slight Dec 17 Slight Dec 24,Feb 11,Mar 23 Slight Dec 29,Jan 4,Feb 5,6 Feb 13-18,25,Mar 3-7 Mar 9-16,18-20,23-27 Mar 30-Apr 2
	Stain, Red, Nose Alopecia, Front Leg	Apr 28-May 23,25-31 Moderate Jan 4 Slight Jan 11-Feb 12,18-22 Feb 27-May 31 Marked

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Animal Number	Clinical Signs	Dates Observed Severity (1986/1987)
86D00503	Irritable	Nov 21, Dec 24 Jan 10-12, Feb 6, 12-16 Feb 18-22, 25-27 Mar 2,5-7,9,10,12-20 Mar 24-29, Apr 6 Marke
86D00515	Irritable	Nov 14, Dec 22-30 Jan 1-6,11,12,27,28 Feb 12-16, Mar 7,30 Mar 31, Apr 13,14 May 2 Moderat
	Material, Red, Nose Incr. Startle Reflex Rough Coat	Dec 7,Feb 20-22 Sligh Dec 24 Sligh Jan 28-Feb 3
	Aggressive Stain, Red, Nose	Mar 21,22 Moderat Mar 8-20,Apr 4,5 Apr 15-21 Marke Mar 13 Sligh
86D00549	Material, Red, Nose Material, Dark, Nose Irritable	Dec 17,18 Sligh Dec 22,28,Mar 4 Sligh Dec 23,24,29-Jan 3 Jan 5,6,27,Feb 5 Mar 10,11,Apr 7
	Material, Clear, Nose Stain, Red, Nose Aggressive	Apr 28-30, May 2 Moderat Dec 26 Sligh Feb 12,13,18, Mar 9 Moderat Mar 5, Apr 5,6 Moderat
86D00582	Stain, Red, Nose Alopecia, Legs	Jan 4 Sligh Jan 12-Apr 4,6-30
	Scab, Leg Irritable	May 2-5 Marke Jan 29 Sligh Mar 12-18,Apr 6-12 Sligh

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Animal Number	Clinical Signs	Dates Observed (1986/1987)	Severity
86D00594	Irritable	Nov 12, Dec 26-30 Jan 4,11-13,26,28 Feb 4,9-16,19,20 Feb 25-27, Mar 2-5 Mar 24,25,30-Apr 2 Apr 5-9,20-23	Marked
	Material, Red, Nose Stain, Red, Nose Rough Coat Aggressive Stain, Brown, Eye Stain, Brown, Nose Diarrhea	Dec 26,Mar 4 Jan 8,21,22 Jan 31,Feb 1 Feb 23,24,Mar 18-20 Apr 20 Apr 20 Apr 21,22	Slight Moderate Slight Moderate Slight Slight Present
86D00610	Stain, Yellow, Perianal Irritable	Nov 12 Nov 12,13,Dec 15,16 Dec 22,25,27-29 Jan 5-7,10-13,16 Jan 23-27,29,30,Feb Feb 11,13-16,21-Mar Mar 8-10,May 2-7	6
	Material, Red, Nose Stain, Red, Nose Aggressive	Dec 28, Feb 11 Feb 13, 19 Mar 2-7, 11-20 Mar 23-Apr 12	Slight Moderate Slight
86D00653	Irritable	Nov 12,13,24-26,Dec Dec 19-21,24,25,27- Jan 3,6,8,10-15,28 Feb 12,Mar 5-7,11-1 Mar 24-27,Apr 7,21	7
	Material, Red, Nose Stain, Rei, Nose	May 2 Dec 27 Jan 2,3,10,14,15 Feb 26-Mar 1,23 Mar 26-29,Apr 1,2	Marked Slight Moderate

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Animal Number	Clinical Signs	Dates Observed (1986/1987)	Severity
86D00653 (cont.)	Aggressive	Jan 9, Feb 11 Feb 27-Mar 4, 8-10	Marked
	Stain, Red, Legs Stain, Brown, Leg	Mar 30-Apr 6 Jan 10 Jan 12,13,26-30,Feb	Slight
	Material, Dark, Nose	Feb 3,9-13 Jan 21-23,29,Feb 7-	
	Alopecia, Front Legs	Apr 5-14 Jan 31-Feb 3,21,22 Feb 26-May 7	Slight Slight
	Stain, Red, Head Material, Brown, Nose Stain, Dark, Nose Stain, Dark, Eye Stain, Brown, Nose	Feb 5 Feb 13 Feb 21-23, Mar 9 Apr 6 Apr 20	Slight Slight Slight Slight Moderate
86D00693	Material, Yellow, Nose Irritable	Dec 1 Dec 29, Jan 1,5,8,11 Jan 16,21,22,27,28 Feb 2-6,19,23,24 Mar 3,4, May 2	Slight -14 Marked
	Aggressive	Jan 9,10,23-26 Feb 7-16,21,22 Feb 25-Mar 2,5-20	
	Material, Red, Nose Stain, Brown, Nose Stain, Red, Nose	Mar 23-Apr 29 Feb 12 Feb 20 Feb 22	Marked Moderate Slight Slight
86D00710	Incr. Startle Reflex Irritable	Nov 21 Dec 15,24,Jan 13	Slight
	Rough Coat Stain, Red, Nose Material, Red, Foot Stain, Red, Foot Alopecia, Leg	Feb 13-16, Mar 12-20 Jan 19,20 Jan 26,27, Mar 30,31 Feb 9,10 Feb 11-13 Mar 1	Slight

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Animal Number	Clinical Signs	Dates Observed (1986/1987)	Severity
86D00732	Irritable	Nov 13,14,17-22 Dec 3,4,12,15,16	
	Incr. Startle Reflex Aggressive	Dec 20,21,Jan 8,22 Nov 20,Jan 4,21 Nov 24,Dec 17-19,22 Dec 24-Jan 7,9-18 Jan 23-Feb 2	Moderate
	Rough Coat Material, Red, Nose	Feb 4-Mar 20,23-May Dec 10,12-14,17-22 Dec 11,28-Jan 8,16	Slight
	Stain, Red, Nose	Mar 23 Jan 19,26-30,Feb 1 Feb 25,Mar 5,9,31	Moderate
	Material, Dark, Nose Material, Dark, Eye Stain, Brown, Nose Chewing	Apr 6 Feb 8 Feb 25 Mar 19 Apr 6	Moderate Slight Slight Slight Moderate

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Animal Number	Clinical Signs	Da	tes Observed (1986/1987)	Severity
86D00534	Irritable Stain, Red, Nose faterial, Brown, Nose Material, Dark, Nose Aggressive	Jan Jan Jan Feb		Moderate Slight Slight Slight Slight
86D00536	Irritable Incr. Startle Reflex Stain, Yellow, Perianal	Mar Nov		Marked Slight Slight
86D00572	Stain, Red, Nose Irritable Aggressive		4 13-17,22 13-19	Moderate Moderate Slight
86D00603	Incr. Startle Reflex Alopecia, Front Legs Rough Coat Stain, Red, Nose Aggressive	Jan Mar Dec Jan May Jan Feb Apr	12-20,31-Apr 27 2-4 19,20,28,29 6,7,21-23,25,26	Marked Slight Moderate Slight Moderate Moderate
86D00613	Rough Coat Irritable Aggressive	Feb	19-21 21,22 23-27,Mar 9,12-2	Slight Marked Slight

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Animal Number	Clinical Signs	Dates Observed (1986/1987)	Severity
86D00638	Incr. Startle Reflex Material, Dark, Nose Material, Red, Nose Irritable Stain, Red, Nose Stain, Brown, Nose	Nov 13 Nov 19, Feb 13 Dec 1, Mar 11, 22-25 Jan 3, Apr 5 Jan 4, 28 Apr 27-29	Slight Slight Slight Moderate Slight Moderate
86D00658	Incr. Startle Reflex Irritable Stain, Red, Nose Material, Red, Nose Aggressive	Nov 13, Jan 1 Dec 12, Jan 5, 11, 12 Mar 9, 23-25, Apr 5 Dec 14 Feb 5, 6 Mar 15-20, Apr 4	Slight Marked Slight Moderate Moderate
86D00662	Material, Red, Nose Incr. Startle Reflex Irritable Stain, Red, Nose	Dec 28, Mar 22, 23 Jan 1, Feb 5-7 Jan 8, 11, 29, Feb 21, Feb 26, Mar 2-5, 13-1 Mar 19, 20 Jan 11, 19, Feb 18, 19	5 Marked
	Stain, Brown, Nose Aggressive Stain, Dark, Nose Material, Dark, Nose	Feb 21,22,Mar 5-9 Mar 30,31,Apr 4 Feb 13-16,Mar 19,20 Feb 13-17,23-25 Mar 23-31,Apr 5,6 Feb 26,27 Mar 4	Marked Moderate Slight Slight Slight
86D00671	Material, Red, Nose Irritable Stain, Red, Nose Stain, Dark, Nose Jumping	Dec 19, Feb 20, 21 Jan 4, 5, 9-12 Feb 13-16, 19, 22 Apr 4, 5 Jan 11, Feb 25 Jan 21 Feb 3	Slight Marked Slight Slight Slight
	Material, Dark, Nose Material, Brown, Nose Aggressive	Feb 11,12 Mar 11 Apr 24-27	Slight Slight Slight

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Animal Number	Clinical Signs	Dates Observed Sever (1986/1987)	ity
86D00701	Irritable	Dec 17,18,27,28 Feb 8-10,17,19	
	Stain, Red, Nose	Feb 27-Mar 4 Ma Feb 5,25,Apr 3,13,14	rked
	Aggressive	Feb 23-26	erate
	Material, Dark, Nose Material, Red, Nose		erate ight light

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Animal Number	Clinical Signs	Dates Observed (1986/1987)	Severity
86D00559	Irritable	Nov 13, Dec 17,22 Jan 27,28, Feb 5 Mar 11,12,23-29 Apr 5	Moderate
	Stain, Red, Nose	Jan 1,14,Feb 1,19,21	
	Stain, Red, Ear Incr. Startle Reflex Stain, Red, Neck	Feb 22,Mar 21 Jan 2,3,4 Jan 2,3 Jan 4,Mar 30,31	Slight Slight Slight Slight
	Aggressive Material, Red, Nose Stain, Red, Head	Jan 26 Feb 8-10 Feb 20-22	Slight Slight Slight
	Material, Dark, Nose	Apr 5	Slight
86D00571	Material, Dark, Nose Stain, Red, Nose	Dec 28,29 Jan 2,10,26-29,Feb 5 Feb 8-10,12,25,26	Slight
	Barrata Ganta	Mar 9-11,23	Moderate
	Rough Coat Stain, Front Leg	Jan 19,20 Jan 28,Feb 20-May 31	Slight Marked
	Stain, Dark, Nose Alopecia, Front Leg	Jan 30 Feb 9-Apr 6,13-27	Slight
	nicopooru, 110me dog	May 6-31	Moderate
	Scab, Leg	Feb 18,May 12,13	Slight
	Material, Red, Nose	Feb 19,20,23	Moderate
	Irritable	Feb 20,Mar 17,Apr 7 May 7-11,26	Slight
86D00608	Irritable	Dec 29, Jan 9, Mar 5-7	
		Mar 25	Slight
	Rough Coat	Jan 19,20	Slight
	Stain, Red, Nose	Mar 13,24	Marked

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Animal Number	Clinical Signs	Dates Observed (1986/1987)	Severity
86D00622	Material, Red, Nose Stain, Red, Nose Irritable	Dec 3,Feb 20 Jan 4,18 Jan 21,Feb 6,21	Slight Slight
	Aggressive Rough Coat Swollen, Red, Feet	Mar 19,20,22 Jan 30,Mar 23-Apr 1 Feb 5-8 Feb 12,13	Slight Slight Slight Moderate
86D00651	Incr. Startle Reflex Rough Coat Irritable	Nov 13 Dec 26-28 Jan 4,10,12,14	Slight Slight
	Stain, Red, Nose Aggressive	Mar 6-8,25,May 7-11 Jan 11 Jan 26-30,Feb 4-27 Mar 5,11-20,Apr 4-6 Apr 15-21,May 22,23	Slight
	Stain, Brown, Nose Material, Red, Nose	May 27,28 Apr 20,21 May 27	Marked Slight Slight

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Animal Number	Clinical Signs	Dates Observed Severity (1986/1987)
86D00516	Incr. Startle Reflex Stain, Red, Nose Irritable	Nov 14, Jan 7 Slight Jan 1,28 Slight Jan 5,6,10,30, Mar 6 Mar 9,15,25-Apr 2 Moderate
	Alopecia, Hind Leg Alopecia, Front Leg	Feb 2,3 Slight Mar 30-Apr 2,6-May 4 Slight
86D00535	Incr. Startle Reflex Irritable	Nov 13, Jan 1 Moderate Dec 1-5, 28-Jan 1, 3-6 Jan 8, 10-12, 14-16
	Aggressive	Jan 22-26, May 1 Moderate Dec 17-19, 22-27 Jan 7,9,27-30, Feb 2-9 Feb 11-Mar 20,23-25
	Rough Coat Stain, Red, Nose Material, Brown, Nose Material, Dark, Nose Material, Red, Nose Stain, Brown, Nose	Mar 30-Apr 14 Dec 22-28, Jan 10-14 Jan 1,2,31, Mar 13 Jan 22 Feb 13 Mar 4 Mar 4 May 2,3 Mar 30-Apr 14 Slight Slight Slight Slight
86D00560	Material, Red, Nose Irritable	Dec 3,17,19-21,Mar 5 Moderate Jan 4,5,Feb 4-9,11 Feb 21-24,Mar 7-10 Mar 25,Apr 6 Marked
	Stain, Red, Nose	Jan 4,5,7,19,20 Apr 4 Moderate
	Aggressive	Feb 25-Mar 6,11-20 Mar 23,Apr 3-5 Moderate
86000569	Irritable	Nov 12, Dec 1, 2, 26, 27 Jan 4, 5, 11, Mar 13-17 Apr 4 5
	Stain, Brown, Nose Material, Red, Nose Material, Dark, Nose Stain, Red, Nose Aggressive	Apr 4,5 Nov 16 Dec 05,26,Feb 20 Dec 23 Jan 29,Feb 8,Apr 1 Mar 23,Apr 6 Moderate Moderate Moderate

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Animal Number	Clinical Signs	Dates Observed Severity (1986/1987)
86D00597	Irritable	Nov 13-15,17,18,20-22 Nov 25-29,Dec 10-12 Dec 14-25,29,Jan 3-9 Jan 11-16,18-29,31
	Aggressive	Feb 1, Mar 25, Apr 20-24 Marked Dec 26-28, Jan 9, 10 Jan 30, Feb 2-Mar 20 Mar 23, 30, 31, Apr 3-8 May 1-4 Marked
	Rough Coat Stain, Red, Nose Stain, Brown, Leg Stain, Red, Leg Stain, Leg Dehydrated	Jan 16-19 Slight Feb 5,25,26 Moderate Mar 2-5,Apr 1-8,13-25 Slight Mar 30,31 Slight Apr 26-30 Slight May 5 Slight
86D00616	Material, Red, Nose Stain, Red, Nose Incr. Startle Reflex Stain, Dark, Nose Irritable Aggressive	Dec 1,Feb 19,20 Moderate Jan 7,Feb 5,7 Slight Feb 5,6 Moderate Feb 26 Slight Mar 6,Apr 6 Slight May 3,4 Slight
86D00623	Inactive Irritable	Nov 6 Slight Nov 12,18,20,24-26 Dec 1,2,5,10,11 Dec 16-19,21,22 Dec 24-Jan 29 Jan 31-Feb 4,Mar 10 Mar 21,22,30,31
	Stain, Red, Nose Material, Red, Nose Stain, Brown, Perianal Rough Coat	Apr 20,21,26-30 Marked Nov 27,28,Jan 28 Slight Dec 17,26,Jan 26 Slight

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Animal Number	Clinical Signs	Dates Observed Severity (1986/1987)
86D00623 (cont.)	Aggressive	Jan 30, Feb 5-Mar 9 Mar 11-20, 23-29, Apr 1
	Material, Dark, Nose Stain, Brown, Mouth Chewing	Apr 4-19, May 1-5 Marked Mar 4 Moderate Mar 8 Slight Apr 6,7 Marked
86D00654	Incr. Startle Reflex Material, Red, Nose Material, Dark, Nose Irritable	Nov 12 Slight Dec 1,5,17,24 Slight Dec 26,28 Slight Jan 1,Apr 26-28 May 1 Moderate
	Stain, Red, Nose	Jan 8, Feb 7-9, 11, 21 Feb 22, 25, 26, Mar 30 Mar 31 Moderate
	Stain, Brown, Nose Aggressive	Mar 11,Apr 3,4 Slight Mar 23-31,Apr 3,8 May 2-5 Moderate
86D00660	Irritable	Nov 12,14,15,Dec 5,25 Jan 1,3,5,11,13,14 Jan 22-25,Feb 1-3 Feb 11-20,25-27
	Stain, Red, Nose Alopecia, Front, Leg Rough Coat	Mar 4,6,8-18,Apr 4-6 Moderate Jan 12,19 Slight Jan 12-19,Feb 21,22 Slight Jan 19
	Material, Dark, Nose Stain, Brown, Nose Material, Red, Nose	Jan 30 Slight Feb 12-18 Slight Feb 23,24 Slight
86D00729	Irritable	Dec 28, Jan 1, 4, 11 Feb 2, 3, 22, Mar 1, 19 Mar 20, 23, 24, Apr 5-7 Moderate

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Animal Number	Clinical Signs	Dates Observed (1986/1987)	Severity
86D00518	Incr. Startle Reflex Material, Red, Nose Stain, Red, Nose	Nov 14,21 Dec 3,17,18 Jan 1-3,10,11,30	Slight Slight
	Irritable	Feb 7-9,22,May 24 Jan 15,Feb 23-26 Mar 12-14,17-20	Moderate
	Material, Dark, Nose Stain, Brown, Nose	Apr 20,21 Jan 26,Feb 21 Apr 20,21,24,25	Moderate Slight Moderate
86D00524	Irritable	Nov 18,20,Dec 1,5,1 Dec 22,26,27,Jan 5 Jan 8-10,12,28,29 Feb 2,4-9,11-26	
	Incr. Startle Reflex Inactive Aggressive	Mar 25-29, Apr 6,7 Nov 20-22, Dec 24 Dec 5 Dec 17, Jan 22-27,30 Feb 27, Mar 4-6,9-20 Mar 23,30-Apr 1	
	Material, Dark, Nose Alopecia, Front Leg Stain, Red, Nose	May 22,23 Dec 26,27,Mar 4,5 May 7-11 May 24	Moderate Moderate Slight Slight
86D00537	Irritable	Nov 12, Dec 15, Jan 4 Jan 8,9,12,23-29 Feb 2,3,7-9,11-19 Feb 21-25, Mar 15,19	
	Material, Red, Nose Stain, Red, Nose Inactive Alopecia, Frort Legs	Mar 20,27-29 Feb 20 Mar 9 Mar 30,31 May 22-31	Moderate Slight Slight Slight Moderate

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Animal Number	Clinical Signs	Dates Observed (1986/1987)	Severity
86D00547	Incr. Startle Reflex Material, Red, Nose Irritable Stain, Red, Mouth Material, Dark, Nose Aggressive	Nov 14, Dec 24, Jan 1- Dec 17, Mar 4 Jan 5, 26, Feb 2, 3 Jan 10 Jan 30 Mar 23	Slight Slight Slight Slight Slight Slight
86D00591	Diarrhea Material, Red, Nose Irritable	Nov 7 Nov 20 Dec 1,11,14,Jan 5,11 Feb 2,3,6-9,23-26 Mar 2-4,12,18-20,22	
	Incr. Startle Reflex Aggressive	Mar 23,Apr 6,7 Jan 1-3 Apr 4-7	Moderate Slight Slight

Appendix M: SERUM CHEMISTRY

List of Serum Chemistry Abbreviations/Units

ACHE CHE ALT AST ALK LDH CK BILI CHOL TRIG URIC TP ALB	Erythrocyte Acetylcholinesterase (U/ml) Plasma Cholinesterase (U/ml) Alanine Aminotransferase (U/l) Aspartate Aminotransferase (U/l) Alkaline Phosphatase (U/l) Lactate Dehydrogenase (U/l) Creatine Phosphokinase (U/l) Total Bilirubin (mg/dl) Cholesterol (mg/dl) Triglyceride (mg/dl) Uric Acid (mg/dl) Total Protein (g/dl) Albumin (g/dl)
GLU BUN CR CAL PHOS NA CL K IRON MAG NT	Glucose (mg/dl) Blood Urea Nitrogen (mg/dl) Creatinine (mg/dl) Calcium (mg/dl) Phosphorus (mg/dl) Sodium (Meq/l) Chloride (Meq/l) Potassium (Meq/l) Iran (µg/dl) Magnesium (mg/dl) Not Taken

Appendix M (cont.): SERUM CHEMISTRY

Animal	Group	Бау	ACHE	CHE	ALT	AST	ALK	НОЛ	CK	BILI
86D00512	baseline	0	1.662	0.251	58.7	195.1	96	1	1606.0	
86D00519	baseline	0	1.496	0.259	48.5	157.7	220.8	999.1	1275 1	
86D00529	baseline	0	1.778	0.438	9.97	99.5	55.		621.7	00.0
86D00564	baseline	0	1.129	0.365		141.1	85.			00.0
86000637	baseline	0	1.313	0.291		111.3	87.			00.0
86000673	baseline	0	1.411	0.446		110.2	27.			00.0
86D00687	baseline	0	1.314	0.422		278.1	46.			00.0
86000702	baseline	0	1.470	0.275		80.0	14.			00.0
86D00711	baseline	0	LN	LN	LN	LN	ΙN) E
86D00714	baseline	0	1.327	0.283	54.4	75.0	258.7	141.2	412.1	00.0
Mean			1.4333	0.3367	56.58	138.67	254.66		853.17	0.000
Std Dev			0.1967	•			5.	305.44	386.24	0.000

Appendix M (cont.): SERUM CHEMISTRY

Animal	Group	Бау	ТОНО	TRIG	URIC	Ţ₽	ALB	GLU	BUN	CR
86D00512 86D00519.	baseline baseline	0 0		167.0 74.1	2.8	5.4	2.32	96. 46.		0.37
86D00529 86D00564	baseline baseline	00	77.4	86.0 117.8	3.2	5.1	3.02	241.6 248.4	15.2	0.56
86D00637 86D00673	baseline baseline	00		71.2 71.5	1.4	5.3 4.8	2.90 2.74	54. 86.		0.42
86D00687 86D00702	baseline baseline	00		107.1 62.2	2.6	5.2	2.62 2.83	41. 84.		0.42
86D00711 86D00714	baseline baseline	00	NT 54.6	NT 71.0	NT 2.5	NT 5.2	NT 2.92	NT 240.8	NT 19.6	NT 0.55
Mean Std Dev			58.26 10.97	91.99	2.44	5.14	2.776	237.83	15.84	0.451

2.723 0.131 2.75 2.87 2.94 2.57 2.75 2.78 2.59 2.68 NT MAG 287.3 106.6 IRON 341 337 343 276 174 356 454 170 NT 6.50 6.3 6.3 6.7 6.7 6.7 6.3 NT \simeq CHEMISTRY $\frac{101.8}{2.2}$ 103 100 101 101 103 104 105 98 NT CL146.3 3.0 SERUM 146 148 147 151 147 148 145 145 NT NA 9.90 9.20 11.30 9.40 9.10 5.00 10 00 NT (cont.): 9.83 PHOS Σ 111.2 10.9 12.0 10.6 111.4 111.2 10.0 NAT CAL Appendix Day 000000000 paseline paseline baseline baseline baseline baseline baseline baseline 86D00702 86D00711 86D00714 86000519 86D00529 86D00564 86D00637 86D00673 86D00512 86D00687 Std Dev Animal Mean

0.00 BILI 0.00 794.50 371.12 547.02 99.55 867.2 1078.2 1551.1 628.3 1082.4 577.9 265.1 820.3 464.2 610.3 674.4 533.2 593.7 561.6 591.1 353.8 665.1 563.5 511.9 CK 910.63 341.50 496.83 1232.71 1760.1 1980.1 803.5 877.5 1226.2 1284.8 528.3 1901.5 1686.3 796.6 942.5 822.9 584.0 495.2 1078.1 958.5 632.9 LDH CHEMISTRY 131.38 50.26 49.07 124.31 1113.8 132.8 99.0 138.2 73.3 81.7 148.5 99.2 246.1 180.0 107.1 201.0 102.5 151.3 140.1 63.0 58.4 143.65 22.28 122.64 27.51 147.7 160.5 182.3 129.8 131.4 144.2 120.6 131.5 131.5 160.1 96.3 144.2 81.8 114.0 135.2 110.7 111.8 1165.5 SERUM AST 69.42 20.15 64.91 19.25 59.5 58.9 73.5 56.8 49.9 74.9 58.3 51.3 82.3 43.8 83.3 52.2 62.7 90.2 66.8 55.6 (cont.): ALT 0.326 0.437 0.34 0.648 0.648 0.31 0.34 0.543 0.543 0.954 0.22 0.54 0.34 0.35 0.25 0.25 0.39 0.39 CHE Σ Appendix 1.484 1.175 0.206 0.204 ACHE 1.35 1.07 1.32 1.34 1.59 1.61 1.63 1.63 1.27 1.24 1.16 1.16 1.27 1.39 1.46 1.02 0.98 Day 180 180 180 180 180 180 180 180 180 180 180 180 180 180 180 Group 22222222 86D00579 86D00549 86E00532 86D00538 86D00558 86000576 86000578 86000584 86D00715 86D00503 86D00515 86D00582 86D00594 86D00610 86D00653 86000693 86D00710 86000517 86D00725 86D00732 Std Dev Std Dev Animal

0.00 00.0 BILI 00000000000 607.95 265.18 283.40 680.11 834.3 478.4 475.4 1229.7 399.8 366.7 1160.2 788.8 430.1 456.6 527.3 486.8 619.5 1043.9 986.6 632.4 634.6 389. CK 1006.58 326.72 986.19 518.27 781.5 1454.0 728.6 656.9 1050.7 888.5 844.9 707.6 348.5 952.2 11193.9 745.3 1042.9 2180.5 052.4 LDH CHEMISTRY 24.26 29.82 106.06 106.76 93.6 117.4 139.7 74.7 85.4 130.8 98.2 132.6 104.1 81.2 137.7 77.9 14.6 79.5 28.2 72.4 31.5 ALK 112. 114. 147.21 46.87 80.31 168.90 141.2 109.5 122.8 20.1 136.1 237.3 97.9 90.1 170.6 100.8 351.0 87.0 224.7 126.4 98.1 211.1 193.5 1161.7 SERUM AST 78.51 29.79 91.27 73.0 56.0 67.0 30.6 32.6 60.2 57.5 90.2 58.0 58.4 87.1 69.4 45.5 86.0 71.3 72.9 274.1 (cont.): ALT 0.304 0.160 0.040 0.24 0.10 0.12 0.12 0.20 0.16 0.13 0.15 0.37 0.25 0.38 0.34 0.34 0.19 0.40 0.25 CHE Σ Appendix 0.756 0.214 271 1.021 ACHE 0.84 1.06 1.06 1.00 0.79 0.73 0.73 0.63 0.50 1.17 1.06 1.22 0.99 0.98 1.08 0.34 1.37 180 180 180 180 180 180 180 180 Day 180 180 180 180 180 180 180 180 Group rm m m m m m m m m86D00569 86D00536 86000535 86D00616 86000638 86000658 86D00516 86000560 86D00597 86D00623 86D00654 86D00660 86D00729 86D00534 86000572 86000603 86D00613 86000662 86D00671 86D00701 Std Dev Std Dev Animal Mean Mean

0.690 0.625 0.67 0.59 0.63 0.60 0.67 0.64 0.52 0.52 0.69 0.74 0.74 0.84 0.59 0.61 0.61 S 6.78 18.89 2.71 18.6 15.4 18.8 15.6 19.3 16.2 15.6 15.6 20.7 20.4 118.7 118.3 118.0 14.9 224.9 116.3 BUN 256.69 42.42 266.60 54.51 267.0 261.1 230.3 294.3 309.3 231.6 281.4 191.5 2223.7 242.9 323.7 359.2 305.3 225.0 224.7 234.5 320.4 GLU 3.207 3.223 CHEMISTRY 3.39 3.12 3.47 3.00 3.41 3.37 2.84 2.92 3.23 3.08 3.53 3.17 3.22 2.93 3.16 3.25 3.67 3.02 ALB 6.49 6.50 6.3 6.3 6.3 6.3 6.3 6.3 6.3 6.3 6.3 6.2 6.5 7.6 6.5 6.5 6.8 6.8 6.8 ΤP SERUM 2.57 3.01 1.9 22.7 22.1 22.1 22.6 4.8 4.8 URIC (cont.): 264.03 73.78 251.94 102.32 348.6 284.9 167.0 236.3 156.2 265.3 308.7 209.2 280.4 147.7 354.1 231.4 135.5 232.0 326.4 273.1 457.7 TRIG Σ 76.69 19.35Arpendix 81.24 21.92 65.9 88.4 57.8 75.6 81.5 77.4 102.4 48.5 76.7 77.4 81.0 76.1 126.0 71.5 113.9 CHOL 180 180 180 180 180 180 180 180 180 180 180 180 180 180 180 180 Day Group 86D00693 86D00710 86D00549 86D00594 86000610 86D00653 86D00732 86D00503 36D00515 86000582 86D00579 86000584 86D00715 86000538 86000558 86D00576 86000578 86D00725 86000517 86D00532 Mean Std Dev Std Dev Animal Mean

Appendix M (cont.): SERUM CHEMISTRY

Alltillat	Group	Day	СНОГ	TRIG	URIC	TP	ALB	GLU	BUN	CR
00d9	က	ω	2	90.	•		6.	82.	ω	9.
6D0053	e	æ	7.	30.	•		Э.	91.	-	7.
S	e	180	101.6	319.1	1.0	6.1	2.89	210.6	20.8	99.0
0900d9	ĸ	8	75.	07.	•		0.	. 99	9	6.
6D0061	m	8	6	46.	•	•	٣.	31.	7	9.
6D00G3	m	8	0	32.	•	•	4.	53.	7	9.
6D0065	n	œ	68.	89.	•		6.	15.	ъ 8	. 5
9900d9	က	8	2	38.		•	٣.	98.	7.	9.
CD0009	m	∞	9	07.	•		۲.	29.	ω	9.
000009	ю	8	0	42.	•	•	4.	42.	8	. 4
Mean			8.4	0.6	m.	ω.	.20	2.1	.5	.65
Std Dev			14.59	72.05	96.0	0.29	0.224	31.14	2.92	0.106
6D0051	7	α	9	84.		•	.3	41.	9	•
6D0053	7	∞	7	50.	•	•	0.	07.	0	•
9500d9	_	8	3	46.	•	•	٣.	93.	α	•
9500 0 9	7	8	 4	09.		•	٣.	83.	6	•
86D00597	7	180	67.4	96.4	3.8	6.7	3.65	252.2	18.9	0.01
6D0061	7	8	4	00.	•	•	٦.	35.	6	•
6D0062	7	$\boldsymbol{\omega}$	9	53.	•	•	0.	17.	4.	•
6D0065	7	œ	S	52.	•	•	0.	22.	7.	•
900 0 9	7	∞	8	20.	•	•	.5	23.	7.	•
6D0072	7	α	9	05.	•	•	۲.	94.	9.	•
Mean			79.08	251.99	3.09	6.35	3.252	257.12	18.25	0.688
Std Dev			3.1	28.2	σ	~	20	71.0	1	0.4

Appendix M (cont.): SERUM CHEMISTRY

Animal	Group	Day	CAL	PHOS	NA	CL	Ж	IRON	MAG
6D0051	-	8	•	٠.	4	0	٠	2	٣.
6D0053	-	α	0	0.	4	0	•	7	. 5
6D0053	1	$\boldsymbol{\omega}$	0	ς.	4	0	•	\sim	.5
6D0055	-	8	0.	.5	4	0	•	П	. 5
86D00576	_		10.3	6.08	146	100	7.0	118	2.49
6D0057	1	∞	9.	7.	4	0	•	Ч	٣.
6D0057	H	œ	0	6.	4	0	•	Š	٣.
6D0058	-	æ	•	4.	4	0	•	Ö	. 5
6D0071	٦	æ	0	.2	4	0	•	9	ε.
6D0072	Н	180	0	ω.	4	0	•	9	. 2
Mean			2	.19	1 .	•	8.	6.	. 63
Std Dev			0.30	0.817	2	1.7	1.23	22.9	0.432
6D0050	2	∞	•	. 2	4	0	•	7	9.
6D0051	7	$\boldsymbol{\omega}$	•	٦.	4	0	•	4	4.
6D0054	7	8	•	4.	4	\blacksquare	•	9	.5
6D0058	2	8	0	0.	4	0	•	4	9.
86D00594	2	180	10.4	6.14	145	103	8.9	146	2.39
6D0061	2	8	0	. 2	4	0	•	7	4.
6D00065	2	8		۲.	4	0	•	4	.5
690009	2	œ	•	٤,	4	0	•	4	. 1
6D0071	2	8		.5	4	0	•	4	4.
6D0073	2	œ	·	4.	4	0	•	2*	8.
Mean				.27	144.3	103.3	6.55		2.529
Std Dev			0.32		٠	•	ω.	ж •	. 19

* Value not included in group mean.

CHEMISTRY

SERUM

(cont.):

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2.312 0.277 2.752 0.482 2.40 2.48 1.93 1.93 2.12 2.54 2.60 2.10 1.98 2.24 2.75 2.20 3.56 3.36 3.13 2.17 2.44 2.79 2.79 MAG 162.2 27.7 IRON 165 141 139 125 181 148 13 142 147 193 210 176 153 143 141 129 158 154 134 152 6.03 6.73 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.7 6.7 6.2 6.2 6.2 7.1 7.1 \mathbf{x} 103.0 2.1 104. 103 104 103 103 103 107 105 105 102 101 101 101 104 105 105 101 CL144.9 0.9 £ 2. 148. 2. 145 144 145 146 146 146 145 145 149 149 145 147 152 146 151 147 143 148 Ž 6.188 6.975 0.738 PHOS 6.26 7.11 7.70 7.70 7.62 8.04 6.27 5.89 6.89 6.89 5.68 6.55 4.61 4.98 6.64 6.12 6.12 7.27 7.27 Appendix 9.94 10.82 0.44 10.5 10.5 11.4 11.3 11.2 10.8 10.8 10.2 9.7 9.9 9.9 9.9 10.0 10.6 9.6 10.1 CAL Day 081 080 081 081 080 081 80 80 80 80 80 Group m m m m m m m m mc86D00560 86D00569 86D00597 86D00658 86D00662 86D00516 86D00535 86D00616 86D00536 86000572 86000603 86D00613 6D00638 86D00623 86D00654 09900098 6D00534 86000671 86D00729 Mean Std Dev Std Dev Animal

0.00 0.00 0.00 BILI 0.0000 0.0000 0.0000 1012.50 219.02 566.68 228.71 924.50 135.33 804.7 944.0 976.6 783.3 523.1 301.3 457.8 913.0 638.2 914.0 1060.0 1100.1 701.3 CK 1482.40 165.08 674.44 577.83 1478.58 582.30 224.5 272.4 307.7 1501.0 934.4 2447.8 11176.4 1312.5 1521.8 1538.6 1452.9 1722.4 1425.9 LDH 82.60 37.69 98.56 8.93 102.10 38.45 149.3 60.8 66.6 74.7 61.6 89.1 112.8 94.5 100.4 90.0 53.4 60.2 06.4 ALK 96.12 19.16 126.58 16.24 142.30 26.42 88.6 73.8 85.8 116.9 133.0 142.5 110.2 108.2 139.0 125.2 186.7 137.2 119.9 AST 46.00 6.48 54.16 10.64 53.58 8.45 54.7 39.3 40.5 50.1 45.4 67.7 50.5 52.6 45.0 52.1 43.9 58.9 50.2 47.4 70.4 0.318 0.334 0.340 0.35 0.27 0.39 0.28 0.30 0.40 0.30 0.27 0.28 0.45 0.36 0.41 0.31 0.27 0.32 CHE 1.534 1.728 0.2150.984 1.44 1.75 1.89 1.49 1.61 1.84 1.84 1.04 0.80 1.24 1.02 0.82 1.41 210 210 210 210 210 210 210 210 210 210 Day 210 210 210 210 210 Group 3A 3A 3A 3A 3A 86D00647 86D00665 86D00622 86D00651 86D00518 86D00585 86D00614 86D00559 86D00571 80900d98 86D00524 86D00537 86D00547 86D00540 Mean Std Dev 86D00591 Std Dev Std Dev Animal

CHEMISTRY

SERUM

(cont.):

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Appendix

Appendix M (cont.): SERUM CHEMISTRY

Animal	Group	Бау	СНОГ	TRIG	URIC	TP	ALB	CLU	BUN	CR
86000540	-	_	7	31			^	68	4	7
86000585	٠, ٠	+ ←	. 4	90	•	•	1 4	16.		ی .
86D00614		210	79.3	266.4	8.0	5.8	3.52	222.7	17.0	0.51
86D00647	1		φ.	61.	•		.2	58.	5.	7.
86D00665	7	~	2.	07.	•	•	. 2	18.	9	. 4
Mean			ω.	4.6	6.	10.	.34	6.9	٠	. 60
Std Dev			6.57	92.34	0.87	0.30	0.133	24	1.15	0.120
86D00559	3A	210	ж	18.	•	•	. 5	42.	1.	9.
86D00571	3A	210	47.6	131.3	2.8	6.1	3.45	229.2	19.6	0.62
86000608	3A	210	و.	78.	•	•	. 1	42.	7 .	9
86D00622	3A	210	8	.96	•	•	. 2	43.	5.	.5
86D00651	3 A	210	9	08.	•	•	4.	04.	9	. 5
Mean			0.	6.3	6.		.35	2.5	9	. 60
Std Dev			22.51	09	1.17	0.26	0.147	16.82	2.30	0.063
86D00518	7A		0	33.	•	•	.2	19.	7.	ε.
86D00524	7.A	210	93.5	185.0	1.8	6.2	3.37	216.4	17.8	0.79
86D00537	7A	\vdash	و.	89.	•	•	.5	14.	7.	9.
86D00547	7.A	7	0	60.	•	•	۳,	47.	5.	9.
86D00591	7A	\leftarrow	0	. 60	•	•	. 2	58.	5.	. 2
Mean			78.40	275.62	1.82	90.9	3.340	231.18	16.50	0.548
Std Dev			ა.	03.5	4	۲.	.12	20.0	1.3	.21

Appendix M (cont.): SERUM CHEMISTRY

Animal	Group	Бау	CAL	PHOS	NA	CL	ೱ	IRON	MAG
86D00540 86D00585 86D00614 86D00647 86D00665	ееее	210 210 210 210 210	9.6 10.3 9.8 10.4 10.5	5.94 5.52 5.09 5.22	147 148 148 148	101 101 103 99 101	6.5 7.0 5.7 7.2 5.7	103 109 143 107 155	2.40 2.46 2.01 2.65 2.19
Mean Std Dev			10.12	5.542	147.8	101.0	6.42	123.4	2.342
86D00559 86D00571 86D00608 86D00622 86D00651	3 A A A A A A A A A A A A A A A A A A A	210 210 210 210 210	10.4 9.8 9.9 11.3	5.41 5.31 5.95 5.76	149 149 147 147	100 101 99 100 100	8.7 6.7 8.0 7.0 6.6	201 138 133 130 154	2.97 2.61 2.64 2.66 2.54
Mean Std Dev			10.24	5.526	148.2	100.0	7.40	151.2 29.3	2.684
86D00518 86D00524 86D00537 86D00547 86D00591	7 A 7 A 7 A 7 A 7 A 7 A 7 A 7 A 7 A 7 A	210 210 210 210 210	10.0 10.2 10.3 10.1	5.32 5.83 6.26 4.75 5.03	148 151 148 148	6 6 8 6 6 6 6 6 6	6.3 8.4 7.5 7.2	139 149 140 104	2.34 2.77 2.95 2.55 2.60
Mean Std Dev			10.06	5.438	148.4	98.8	7.00	140.2	2.642

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Appendix N: HEMATOLOGY

List of Hematology Abbreviations/Units

RBC HGB	Erythrocytes (x10 ⁶ /µ1) Hemoglobin (g/dl)
HCT	Hematocrit (%)
MCV	Mean Corpuscular Volume (femtoliters)
MCH	Mean Corpuscular Hemoglobin (picograms)
MCHC	Mean Corpuscular Hemoglobin Concentration (g/dl)
PLT	Platelets $(x10^3/\mu l)$
WBC	Total Leukocyte Count $(x10^3/\mu l)$
SEG	Polymorphonuclear Granulocytes (%)
BAN	Immature Neutrophils (%)
EOS	Eosinophils (%)
BAS	Basophils (%)
LYM	Lymphocytes (%)
MON	Monocytes (%)
ATL	Atypical Lymphocytes (%)
NRBC	Nucleated Red Blood Cell (#/100 WBC)
NT	Not Taken

Appendix N (cont.): HEMATOLOGY

Animal	Group	Бау	RBC	нсв	HCT	MCV	МСН	MCHC	RET	PLT
86000512	baseline	0		•	•	61	· .			789
86D00519	baseline	0	6.08	13.5	37.3	61	22.1	35.9	0.4	895
86D00529	baseline	0		•	•	09	0	•		652
86D00564	baseline	0		•	•	63	2	•		1039
86D00637	baseline	0		•	•	62	ζ.	•		962
86D00687	baseline	0		•	•	09	ω.	•		652
86000673	baseline	0		•	•	59	ζ.	•		618
86D00702	baseline	0		•	•	09	ζ.	•		784
86000711	baseline	0		•	•	63	2	•		878
86D00714	baseline	0		•	•	61	Ή.	•		688
Mean			5.925	13.15	37.04	61.0		4.		5.
Std Dev			•	1.61	•	1.3	0.74	0.66	0.30	144.6

Appendix N (cont.): HEMATOLOGY

Animal	Group	Бау	WBC	SEG	BAN	EOS	BAS	ПУМ	MON	ATL	NRBC
86D00512	baseline	0	5.3	10	0	0	0	68	-	C	
86000519	baseline	0	2.5	21	0	0	0	79	0	0) C
86D00529	baseline	0	4.2	19	0	_	0	80	0	0	0
86D00564	baseline	0	3.2	δ	0	0	0	91	0	0	. 0
86000637	baseline	0	6.3	13	0	0	0	87	0	0	0
86D00687	baseline	0	0.9	27	0	0	0	73	0	0	· C
86000673	baseline	0	5.8	27	0	0	0	73	0	0	0
86D00702	baseline	0	6.3	8	0	0	0	91	,	0	· C
86D00711	baseline	0	4.9	28	0	0	0	72	0	0	o C
86D00714	baseline	0	6.5	ω	0	1	0	06	1	0	0
Mean			5.10	17.0	0.0	0.2	0.0		0.3	0.0	0.0
Std Dev			1.39	8.4	0.0	0.4	0.0	8.0	0.5	0.0	0.0

Appendix N (cont.): HEMATOLOGY

Animal	Group	Day	RBC	HGB	HCT	MCV	МСН	МСНС	PLT
,									
6D005	H	∞	<u>.</u>	4	0	51	ω.	9	LN
6D005	Ц	∞	ο.	5.	٦.	52	6	9	ĘZ
6D005	٦	∞	٦.	5.	Η.	51	ω.	9	τN
6D009	-	8	. 5	5.	3.	52	7.	4.	ĘŻ
6D005	7	∞	٣,	•	Ţ,	50	7	. 2	EZ
6D005	7	∞	.5	ж Э	φ,	50	ω.	9	LN
6D005	-	8	٠.	4.	9.	50	9.	7	Ę
86D00584	H	180	8.01	14.8	41.2	51	18.5	36.0	LN
6D007	7	α	6.	•	9.	50	ω,	9	Ę
6D007	 4	180	· 3	•	0	49	7.	9	LN
Mean			7.942	14.78	40.82) •	4.	.2	EZ
Std Dev			4	т.	9.	1.0	0	0.82	L Z
86D00503	2	180	4.66	8.6	2.	47	ω	ω	ΕN
6D0051	2	α		14.1	43.0	51	16.9	32.9	; E
6D0054	2	α	suffi	cient sample			•		7.5
6D0058	2	ω	8.29	_	43.2	52	18.9	36.4	τN
6D0029	2	∞	S	ient	٠			•	•
6D0061	2	∞	8.42		4	52	ස ප	5	τN
6D00065	2	∞	.,		7.	50	8	. 9	í É
6900 0 9	2	∞	٠,	. ~	2	50	8	9	£Z
6D0071	2	∞	•	. ~	42.7	52		2	Ę Z
6D0073	2	∞	•		9.	51	9.		LN
Mean			7.665	14.08	39.24	50.6	4	-:	TN
Std Dev			.27	٣.	. 5	1.7	0	1.60	LN

Appendix N (cont.): HEMATOLOGY

Animal	Group	Бау	RBC	нсв	HCT	MCV	MCH	МСНС	PLT
86D00534 86D00536 86D00572 86D00603 86D00613 86D00638 86D00638	m m m m m m m	180 180 180 180 180 180	7.70 8.26 6.91 8.18 7.97 7.84	14.2 14.5 13.7 14.5 14.9 15.5	39.3 39.0 40.0 42.0 42.5	5 4 4 4 4 8 8 9 9 1 1	18.5 17.6 17.8 17.8 18.1 18.3 18.3	36.3 36.0 37.3 37.2 37.2 37.6	F F F F F F F F F F F F F F F F F F F
6D0067 6D0070 ean td Dev	. m m	α α		5.	2.		8 8.0	6.	TN TN TN
86D00516 86D00535 86D00560 86D00569 86D00597 86D00616 86D00623	<i></i>	180 180 180 180 180 180	.23 .91 .87 .04 .84 .45 .74 .89	15.0 14.1 14.8 13.7 16.5 14.1 14.2 15.2	42.9 41.5 45.0 38.6 39.7 42.1	52 50 53 48 51 50 50	18.2 17.9 18.9 17.2 18.3 18.3	34.9 35.7 35.7 36.8 36.5 36.5	TN TN TN TN TN TN TN
ean td Dev)	. 429	, 40	40.74	50.6	18.24	36.07	NT

Appendix N (cont.): HEMATOLOGY

					•						
Animal	Group	Day	WBC	SEG	BAN	EOS	BAS	LYM	MON	ATL	NRBC
600051	•	α		α	C	C	c	C	c	(
60000		∞	•		o c	> <	o c	26 C0	> c	> (5 (
6D00G3	٠.	∞	7.6	7.7) C) C	> <	700	> <	>	> c
86D00558	· 1	180	7.8	, ω	0	0	o C	60) C	> <	> <
6D0057	-4	8	8.1	31	0	0	0	67	o	o	o
6D0057	Н	ω	•	25	0	.	0	74	ı C	o	> <
6D0057	1	8	•	12	Ú	0	0	88	0	0	· C
6D0058	1	8	•	10	0	0	0	90	0) C
6D0071	П	∞	4.9	6	0	0	0	91	0	0	o C
6D0072		180	9.4	25	0	2	0	73	0	0	0
Mean			1	15.4	-} •	•	1 .	- (-	- -	- 1	
Std Dev			1.84	8.4	0.0	0.7	0.0	9.2	9.0	0.0	0.0
6D005	2	ω			0	0	0		0	C	c
60009	2	ω	9.6	23	0	0	0	77	· C) C	o
6D005	2	∞	$\overline{}$	S	ample))	ò
86000582	2	180	4.8	22	0	0	0	78	0	0	O
6D005	2	8	\Box	ß	ample					,	ò
900 a 9	2	8		7	0	0	0	89	0	0	C
900 0 9	7	8	4.5		0	0	0	59	0	0) C
900 0 9	2	8	2.6		0	0	0	72	0	0) C
6D007	2	8	10.2	19	0	7	0	71	0	0	o C
6D007	5	ω	9.8		0	 1	0	98	0	0	0
Mean				•	1 .	٠ .	•	- (-		i	l
Std Dev			2.20	9.4	0.0	0.7	0.0	9.5	0.0	0.0	0.0

Appendix N (cont.): HEMATOLOGY

Animal	Group	Day	WBC	SEG	BAN	EOS	BAS	LYM	MON	ATL	NRBC
86D00534 86D00536 86D00572 86D00603 86D00613		180 180 180 180 180	10.1 6.7 5.5 6.7	12 8 16 10	00000	0 1 1 1 0 0	00-1000	88 91 82 87 90	0000-	00000	00000
6D0065 6D0066 6D0067 6D0070	. m m m m	\mathbf{x}	i		000	0001	000	81 91 55	+000	0000	0000
Mean Std Dev			7.40	16.1	0.0	0.7	0.1	83.0 11.2	0.1	0.0	0.0
86D00516 86D00535 86D00569 86D00569 86D00597 86D00616 86D00623 86D00654 86D00654		180 180 180 180 180 180 180	.2 .7 .0 .4 .7 .9 .3 .5	7 15 21 18 19 13 8 15 7 cient se	0 0 0 0 0 0 0 0 8ample	000010000	00000000	93 85 79 81 87 92 92	00010001	00000000	00000000
Mean Std Dev			6.87 2.53	13.7 5.3	0.0	0.3	0.0	85.8	0.2	0.0	0.0

Appendix N (cont.): HEMATOLOGY

Animal	Group	Day	RBC	нсв	нст	MCV	МСН	MCHC	PLT
86D00540 86D00585 86D00614 86D00647 86D00665	ппппп	210 210 210 210 210	8.06 7.54 8.01 8.41 7.97	14.9 14.2 14.9 15.1	40.2 38.1 40.3 41.2	50 50 50 48 52	18.6 18.8 18.6 17.8 19.0	37.1 37.2 37.0 36.9	962 947 792 952 903
Mean Std Dev			7.998	14.80	40.04	50.0	18.56	36.98	911.2
86D00559 86D00571 86D00608 86D00622 86D00651	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	210 210 210 210 210	8.26 8.31 8.43 8.30	15.6 15.2 15.7 15.1	42.2 41.6 42.1 40.9 41.6	51 50 50 49	19.0 18.5 18.7 18.2 17.8	37.1 36.7 37.4 36.9	795 1000 774 989 906
Mean Std Dev			8.390	15.40	41.68	49.6	18.44	37.00	892.8
86D00518 86D00524 86D00537 86D00547 86D00591	78 78 78 78	210 210 210 210 210	8.44 8.02 7.62 6.93	14.9 16.3 14.3 15.2 13.1	40.0 44.4 39.1 40.6 34.9	47 55 51 51	17.6 20.4 18.8 19.2 18.8	37.2 36.8 36.6 37.5	1288 813 872 764 57
Mean Std Dev			7.594	14.76	39.80	50.8	18.96 1.00	37.14	758.8

Appendix N (cont.): HEMATOLOGY

Animal	Group	Day	WBC	SEG	BAN	EOS	BAS	LYM	MON	ATL	NRBC
86D00540 86D00585 86D00614 86D00647 86D00665		210 210 210 210 210	გ. დ. დ. დ. დ. დ. დ	10 13 45 24	0000	1 0 1	00000	89 86 86 55	00000	00000	00000
Mean Std Dev			7.42	21.2	0.0	0.6	0.0	78.2	0.0	0.0	0.0
86D00559 86D00571 86D00608 86D00622 86D00651	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	210 210 210 210 210	7.9 6.5 5.2 5.4	22 8 23 11	00000	1 2 0	00000	92 77 82 75 88	00001	00000	00000
Mean Std Dev			6.24	14.2	0.0	0.8	0.0	82.8 7.2	0.2	0.0	0.0
86D00518 86D00524 86D00537 86D00547 86D00591	7.8 7.8 7.8 7.8 7.8	210 210 210 210 210	7.5 12.7 4.6 6.5	35 9 27 17	00000		00000	65 90 73 83	0 1 0 0 1	00000	00000
Mean Std Dev			7.24	20.8	0.0	0.0	0.0	78.8	0.4	0.0	0.0

Appendix O: PATHOLOGY

GLP STUDY # 86005 Pathology Report

Study Director: Don W. Korte, PhD, LTC, MS.

Principal Investigator: Earl W. Morgan, DVM, MAJ, VC. Pathologist: Charles B. Clifford, DVM, PhD, MAJ, VC.

I. INTRODUCTION

Study: 180 - Day Oral Subchronic Toxicity Test

Test Compound: Pyridostigmine Bromide

Animal: Rattus norvegicus, Sprague-Dawley, 5 weeks, 55 Males.

Dosage Groups:

Group	Daily Dose		Recover for 30 Day Sacrifice
	(mg/kg B.W.)	(Interim Sacrifice)	(Final Sacrifice)
1	0 (Control)	10 males	5 males
2	1	10 males	0 males
3	10	10 males	0 males
7	10 (dose 5 d., recover	2 d.) 10 males	0 males
8	10	0 males	5 males
9	10 (dose 5 d., recover	2 d.) 0 males	5 males

Reference: SOP-OP-STX-74

II. SUMMARY OF PROCEDURES

Euthanasia: Sodium Pentobarbital, IP.

Organ Weights: Brain, Liver, Kidney, Heart, Spleen, Adrenal, and Testes.

Fixative: 10% Neutral Buffered Formalin.

Histopathology: Routine.

III. ORGAN WEIGHT FINDINGS: Summaries of absolute organ weight data by dosage group are presented in Pathology Table 1. Pathology Tables 2 has group summaries of organ weights as a percentage of brain weight. Organ weight as a percentage of body weight was also calculated for each organ and dose group, data not shown. No significant differences were detected by analysis of variance among the dosage groups with respect to organ weight or organ weight ratios.

IV. GROSS FINDINGS: Gross findings are summarized in Pathology Table 3. All gross findings were interpreted as incidental and unrelated to treatment.

V. MICROSCOPIC FINDINGS: Tissues saved for microscopic examination from all groups were: Accessory sex glands, adrenal glands, aorta, femur, brain, sternum, bone marrow, vertebrae, cecum, colon, diaphragm, duodenum, extensor digitorum longus muscle, epididymis, esophagus, eyes with optic nerve, heart, ileum, jejunum, kidney, lacrimal gland, liver, lung, mesenteric lymph node, nose/turbinates, pancreas, pituitary, parathyroid gland, spinal cord, salivary gland, skin, skeletal muscle, sciatic nerve, soleus muscle, spleen, stomach, thyroid gland, testis, thymus, trachea, and urinary bladder. All tissues from all animals were examined in each dose group. All gross lesions were examined from all animals. Due to concern of extraocular muscles as a potential target tissue for pyridostigmine bromide, extraocular muscle was also examined in all eye sections where it was present, and was recorded as a separate, miscellaneous, tissue.

Pathology Tables 4 and 5 list the incidence summary for all microscopic observations of all tissues from the final and interim sacrifices. Based on results of Kolmogorov-Smirnov two-tailed analysis (95% confidence level) of microscopic findings, two of thirty-six lesions were significantly more frequent in a treated group than in the control group. Chronic, multifocal hepatic inflammation, slight to mild in severity, occurred more frequently in Dose Group 3 (interim sacrifice), and brown pigment, probably hemosiderin, in macrophages was more frequently observed in the spleens of rats in Group 9 (final sacrifice). Neither of the findings was unique to treated animals and their

increased frequency was considered unlikely to be related to treatment. Inflammation of the pancreas, varying from slight to moderate in severity, was observed in animals from all groups. Islets of Langerhans were surrounded by this chronic process and appeared increased in size, but actual destruction of the Islets was not observed. The cause of the pancreatic inflammation was not determined. Pathology Annex A has the correlation of gross and microscopic lesions for all rats, with any gross finding other than "No Lesions Recognized". Pathology Annex B contains the Individual Animal Reports with organ weight data and gross and microscopic findings.

VI. SUMMARY COMMENTS: All lesions observed in these rats were interpreted as incidental findings. No morphologic evidence of toxicity due to the test compound was found.

Charles B. Clifford

MAJ, VC

Diplomate, ACVP

Pathology Services Branch, Division of Military Trauma Research

Chal-3cepy

29 MAY 1990

Glossary of Microscopic Findings

Cecum

--Granuloma(s), Submucosa: One or more aggregates of macrophages and lymphocytes is present in the submucosa.

Cervical Lymph Node

--Plasmacytosis, Medullary: The medullary cords are thickened by an increased number of plasma cells.

Colon

--Granuloma(s), Submucosa: One or more aggregates of macrophages and lymphocytes is present in the submucosa.

Diaphragm

--Inflammation and Myofiber Degeneration, Chronic: The interstitium is infiltrated by lymphocytes and macrophages. Some myofibers are infiltrated by mononuclear cells and have degenerate sarcoplasm.

Epididymis

- --Lymphocyte Infiltration: The interstitial connective tissue contains aggregates of lymphocytes.
- --Microcystic Change, Epithelium: The epithelium of the epididymis contains numerous round clear spaces, approximately the diameter of the epithelial cells, and which appear to be extracellular.

Extensor Digitorum Longus

--Inflammation, Chronic: The interstitium is infiltrated by lymphocytes and macrophages.

Extraocular Muscles

--Myopathic Change: Myofibers are variably decreased in diameter, with central nuclei. The fibrous connective tissue between fibers contains an infiltrate of mononuclear cells.

Heart

- --Chronic Myofiber Degeneration: In one or more areas myofibers are narrowed with loss of sarcoplasm, and are separated by increased fibrous connective tissue. Myofiber nuclei are increased in number, and Anitschkow cells may be present.
- --Inflammation, Chronic: Myocardial interstitial tissue is infiltrated by lymphocytes and a few macrophages. Fibrosis may be present.

Kidney

- -- Cortical Lymphocytic Aggregates: Self-explanatory.
- --Dilated Renal Pelvis: Self-explanatory.
- --Infarct: A well-demarcated wedge-shaped area of the cortex is undergoing coagulative necrosis.
- --Mineralization, Pelvis: Foci of mineral are present in the urinary pelvis of the urinary space.

- --Progressive Renal Disease: Cortical tubules contain homogeneous, brightly eosinophilic material. Small interstitial aggregates of lymphocytes are occasionally present.
- --Pyelonephritis, Acute: The epithelium, subjacent tissue and the urinary space of the renal pelvis are infiltrated with neutrophils.

Lacrimal Gland

--Inflammation, Chronic: Interstitial aggregates of macrophages, lymphocytes and/or plasma cells surround ducts, ductules and occasional acini.

Liver

- --Arteritis, Chronic: The wall of one or more arteries in a portal area is thickened by fibrosis and an infiltration of mononuclear cells. The endothelium may be hypertrophic and/or hyperplastic.
- --Inflammation, Chronic, Multifocal: Multifocal infiltration of sinusoids and/or portal areas with a mixed population of mononuclear cells. Some fibrosis and/or slight bile duct hyperplasia may be present in these foci.
- --Necrosis, Acute: One or more contiguous group(s) of necrotic hepatocytes. These may be infiltrated by neutrophils.
- --Telangiectasis: Hepatic sinusoids are dilated, with narrowing of the hepatic cords and loss of some hepatocytes.
- --Thrombosis, Portal Vein: An acute fibrin thrombus is present in one of the larger portal veins.
- --Vacuolization, Focal: Hepatocytes in a single contiguous group contain numerous, irregular and poorly defined clear vacuoles.

Lungs

- --Alveolar Histiocytosis: Self-explanatory.
- --Granuloma(s): A focal aggregate of macrophages and lymphocytes, with or without multinucleated giant cells.
- -- Hyperplasia, BALT: Bronchus- and Bronchiole-associated lymphoid tissue, in the form of lymphoid nodules is slightly increased in prominence.

Mesentery

- --Arteritis, Chronic: The wall of one or more arteries in a portal area is thickened by fibrosis and an infiltration of mononuclear cells. The endothelium may be hypertrophic and/or hyperplastic.
- --Inflammation, Granulomatous: The intestinal mesentery contains aggregates of macrophages and lymphocytes.

Pancreas

--Inflammation, Chronic: Interstitial fibrosis infiltration is accompanied by aggregates of macrophages, lymphocytes and/or plasma cells. Interstitial macrophages contain brown pigment. The inflammation is predominantly surrounding ducts and islets of Langerhans.

Pancreatic Lymph Node

--Brown Pigment in Macrophages: Macrophages in the Medulla are laden with dark brown isotropic pigment, probably hemosiderin.

Pituitary Gland

-- Cyst(s), Pars Distalis: The cyst(s) may be ciliated or non-ciliated.

Preputial Gland

--Inflammation, Chronic: Glandular acini and the interstitial connective tissue is infiltrated by lymphocytes, macrophages and neutrophils.

Salivary Gland

--Inflammation, Chronic: Interstitial aggregates of macrophages, lymphocytes and/or plasma cells surround ducts, ductules and occasional acini, predominantly in the exorbital salivary gland.

Skin

--Inflammation, Chronic: The dermis is infiltrated with lymphocytes, plasma cells, and macrophages.

Soleus Muscle

--Inflammation, Chronic: The interstitium is infiltrated by lymphocytes and macrophages.

Spleen

--Increased Brown Pigment in Macrophages: Self-explanatory.

Testis

--Degeneration, Seminiferous Tubules: Loss of germinal epithelium, with local aspermatogenesis. Sertoli cells remain.

Thyroid

-Cyst(s): Squamous epithelial-lined cyst.

Turbinates

--Inflammation, Lymphocytic: The submucosa is thickened, and along with the mucosal epithelium is infiltrated with lymphocytes. Mast cells are prominent.

PRINTED: 14-May-90 Page: 1	SUBCHRONIC/180 DAY FEEDING
Group Comparison Statistics for Absolute Organ Weights (gms) Study Number: 86005	report includes all dead animals (All subgroups) Study Start Date: 10-Dec-86
LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP	RAT/SPRAGUE-DAWLEY

Organ: LIVER Control	Controls from group: 1		Data homogeneous by Bartlett's test (Dunnett's T test)	Bartlett's test	(Dunnett's T tes	t)
Group	Control	2	3	۲	8	
Number/group	15	10	10	10	S	\$
Mean	21.8	23.0	22.5	20.5	19.0	20.8
Standard deviation	3.8	3.0	2.3	2.8	2.7	3.1
Group diff.@ P=.05		3.3	3.3	3.3	4.2	4.2
Group diff.@ P=.01		4.1	4.1	4.1	5.2	5.2
Analysis of variance: Fratio = Note: a * indicates group mean is	n -	Df = 5/ 49 antly different	1.57 Df = $5/49$ F probability = 0.185 significance shown.	= 0.185 evel of signific	ance shown.	

Animals

Мале

Organ: KIDNEY Cont.	- L	1 1	Male Animals ols from group: 1 Data homogeneous by Bartlett's test (Dunnett's Ttest)	n l s Bartlett's test	(Dunnett's T test	
Group		2	3	7	8	6
Number/group	15	10	10	10	S	S
Mean	3.7	4.1	3.7	3.8	3.5	3.7
Standard deviation	0.4	0.4	0.3	0.5	0.2	0.8
Group diff.@ P=.05		0.5	0.5	0.5	9.0	9.0
Group diff.@ P=.01		9.0	9.0	9.0	0.7	0.7

Analysis of variance: F ratio = 1.57 Df = 5/49 F probability = 0.185Note: a * indicates group mean is significantly different from control at level of significance shown.

PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	Report incl	Study Start Date: 10-Dec-86	Study number: 80003 Report includes all dead animals (All subgroups) Study Start Date: 10-Dec-86		rage: c SUBCHRONIC/180 DAY FEEDING
rols from g	Σ	e Anima a homogeneous by	Bartlett's test (Dunr	ett's T	test)
it rol	2	3	7	8	6
15	10	10	10	S	· va
1.7	1.8	1.7	1.8	9.	1.7
0.5	0.2	0.2		1.1	0.2
	0.2	0.2	0.2	1.3	0,3
	0.3	0.3		.4	6.0
= 0.86 is signific	Df = 5/ 49 antly different	F probability from control at	= 0.517 level of significance	shown.	•
₽ L	Organ: HEART Group Number/group Standard deviation Group diff.@ P=.05 Group diff.@ P=.05 Group diff.@ P=.05 Group diff.@ P=.01	Controls from group: 1 Dat Control 2 1.5 10 1.8 0.2 0.2 0.2 0.2 0.3 tio = 0.86 Df = 5/49 ean is significantly different	trols from group: 1 Data homogeneous by ntrol 2 3 10 10 10 10 1.7 0.2 0.2 0.2 0.2 0.3 0.3 0.3 is significantly different from control at	trols from group: 1 Data homogeneous by Bartlett's test (Dunrol 2 3 7 7 7 1.8 1.7 1.8 0.2 0.2 0.2 0.2 0.3 0.3 0.3 0.3 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8	M a e

	Organ: BRAIN Group Number/group Rean Standard deviation Group diff.@.P=.05	Controls from group: 1 Control 2 15 16 2. 2. 2. 0. 0.	Data	Data homogeneous by Bartlett's test 3 7 7 10 10 2. 2. 2. 0. 0. 0. 0.	Data homogeneous by Bartlett's test (Dunnett's T test) 3 7 8 10 10 5 2. 2. 2. 2. 0. 0. 0. 0.	6 5 .0 .0
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Analysis of variance: F ratio = 1.05 Df = 5/49 F probability = 0.402Note: a * indicates group mean is significantly different from control at level of significance shown.

Appendix O (cont.): ParHOLOGY

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	OF RESEARCH V GP CA 94129	Group Comparison S Report inclu St	Statistics for Absolute Orstrudy Number: 86005 ludes all dead animals (All Study Start Date: 10-Dec-86	Group Comparison Statistics for Absolute Organ Weights (gms) Study Number: 86005 Report includes all dead animals (All subgroups) Study Start Date: 10-Dec-86	(gmg) s	PRINTED: 14-May-90 Page: 3 SUBCHRONIC/180 DAY FEEDING
Organ: ADRENAL GLANDS	Controls from	M group: 1	e Animals homogeneous by Bari	ale Animals Data homogeneous by Bartlett's test (Dunnett's Ttest)	nnett's T	test)
Group	Control	2	3	7	6	6
Number/group	15	10	10	10	· v	ı vn
Mean	90.0	0.07	90.0	0.06	0.07	90.0
Standard deviation	0.01	0.02	0.02	0.02	0.01	0.01
Group diff.@ P=.05		0.02	0.02	0.02	0.02	0.02
Group diff.@ P=.01		0.02	0.02	0.02	0.02	0.02
Analysis of variance: F ratio = 1.32 Df = $5/49$ F probability = 0.272 Note: a * indicates group mean is significantly different from control at level of significance shown.	ratio = 1.32 mean is signifi	32 Df = 5/ 49 ificantly different f	F probability = 0.272 rom control at level of	• 0.272 evel of significance	e shown.	

			Male Animals	l a l s		
Organ: TESTIS	S	group: 1		Data nonhomogeneous by Barilett's test (modified T test)	(modified T t	est)
Group	i	2	1	7	8	6
Number/group	15	10	10	10	ۍ.	. 5
Mean	3.51	3.58	3.40	3.46	2.89	3
Standard deviation	0.38	0.24	0.43	0.29	1.21	0.41
Group diff.@ P=.05		72.0	0.37	0.30	1.52	0.5
Group diff.@ P=.01		0.38	0.53	0.42	2.52	₹9.0

Analysis of variance: F ratio = 1.52 0f = 5/49 F probability = 0.201 Note: a * indicates group mean is significantly different from control at level of significance shown.

PRINTED: 14-May-90 Page: 4	SUBCHRONIC/180 DAY FEEDING
Group Comparison Statistics for Absolute Organ Weights (gms) Study Number: 86005	
LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	RAT/SPRAGUE-DAWLEY

Organ: SPLEEN	Controls from group: 1		Data homogeneous by Bart	by Bartlett's test	Data homogeneous by Bartlett's test (Dunnett's T test)	_
Group	Control	2	3	3	8	6
Number/group	15	10	10	10	S	s
Mean	1.	1.	-	-	1.	-
standard deviation	0.	0.	.0	0.	0.	0
iroup diff.@ P=.05		0.	·0	0.	0.	0
Group diff.@ P=.01		0.	· 0	0.	0	0

Analysis of variance: F ratio = 2.10 Df = 5/49 F probability = 0.080Note: a * indicates group mean is significantly different from control at level of significance shown.

o PRINTED: 14-May-90 Page: 1	SUBCHRONIC/180 DAY FEEDING	
Group Comparison Statistics for \$ Organ to Brain Weight Ratio Study Number: 86005 Report includes all dead animals (A)1 subgroups)	Study Start Date: 10-Dec-86	Male Animals
LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	RAT/SPRACHE - DAMLEY	

T test)	9 5 992. 145. 246.
est (Dunnett's	8 5 874. 129. 246.
A n 1 m a 1 s homogeneous by Bartlett's test (Dunnett's T test)	7 10 978. 128. 157.
n a 1 e A n 1 m a 1 s Data homogeneous by Bartlett's test (Dunnett's T test)	3 10 1089. 136. 157.
1	2 10 1044. 124. 157.
Controls from group:	Control 15 1026. 184.
Organ: LIVER Controls fr	Group Number/group Mean Standard deviation Group diff.@ P=.05 Group diff.@ P=.01

Another also of variance: Firatio = 1.65 Df = 5/49 Figure bility = 0.164Note: a * indicates group mean is significantly different from control at level of significance shown.

it)	9 5 176. 37. 30.
(Dun	161. 101. 10. 10. 10.
n a l s by Bartlett's tes	7 10 179. 27. 24.
Male Animals Data homogeneous by Bartlett's test	3 10 179. 19. 24. 29.
	2 10 186. 18. 24.
Controls from group: 1	Control 15 174. 22.
Organ: KIDNEY Contro	Group Number/group Mean Standard deviation Group diff.@ P=.05

Analysis of vilance: F ratio = 0.93 Df = 5/ 49 F probability = 0.469Note: a * indicates group mean is significantly different from control at level of significance shown.

ATHOLOGY
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(cont.
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Append

PRINTED: 14-May-90 Page: 2 SUBCHRONIC/180 DAY PEEDING	T test)	9 83. 12. 15.
Group Comparison Statistics for 4 Organ to Brain Weight Ratio Study Number: 86005 Report includes all dead animals (All subgroups) Study Start Date: 10-Dec-86	ale Animals Data homogeneous by Bartlett's test (Dunnett's Ttest)	8 5 73. 8. 15. 19. gnificance shown.
Statistics for % Organ to Bi Study Number: 86005 ludes all dead animals (All Study Start Date: 10-Dec-86	imals ous by Bartlett's	7 10 86. 17. 12. 15. 15.
omparison Statistics for % Organ to Brain Weight Study Number: 86005 Report includes all dead animals (All subgroups) Study Start Date: 10-Dec-86	Male Animals Data homogeneous by Bart	2 3 7 10 10 10 10 10 82. 83. 83. 86. 7. 13. 17. 13. 17. 12. 12. 12. 12. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15
l I	Controls from group: 1	2 10 82. 7. 12. 15. 15.
TUTE OF RESEARCH H SERV GP CISCO, CA 94129	Controls f	Control 15 82. 9. F ratio = 0 coup mean is sign
LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	Organ: HEART	Group Control 2 3 7 8 8 8 9 10 10 10 5 5 8 9 9 10 10 5 5 8 9 9 10 10 10 5 5 73 9 7 9 8 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10

Organ: BRAIN	Controls from group: 1	group: 1	Male Animals Data homogeneous by Bartlett's test (Dunnett's T test)	a l s by Bartlett's tes	it (Dunnett's T t	est)
Group	Control	2	e e	7	00	· · · · · · · · · · · · · · · · · · ·
Number/group	15	10	10	10	v	٠ ٠
Mean	100.	100.	100.	100.	100	100
Standard deviation	0.	0.		Ö		
Group diff.@ P=.05		0.	0			.
Group diff.@ P=.01		.0	0.	0.		. 0

Analysis of variance: F ratio ≈ 0.00 Df $\approx 5/49$ F probability ≈ 1.000 Note: a * indicates group mean is significantly different from control at level of significance shown.

PRINTED: 14-May-90 Page: 3	SUBCHRONIC/180 DAY FEEDING		d T test)			2.9	0.2	4.C	9.0	•
t Ratio		 	(modifie	8		3.1	0.3	0.5	0.8	shown.
Group Comparison Statistics for \$ Organ to Brain Weight Ratio Study Number: 86005 Report includes all dead animals (A) subgroups)	Study Start Date: 10-Dec-86		a le Anímals Data nonhomogeneous by Bartlett's test (modified T test)	, , , , , , , , , , , , , , , , , , , ,	10	2.7	0.9	0.7	1.0	Analysis of variance: F ratio \sim 0.92 Df \approx 5/49 F probability \approx 0.480 Note: a $^{\circ}$ liminates group mean is significantly different from control at level of significance shown.
Study Ni	udy Start		e A⊓ nonhomog€	3	10	3.1	0.8	0.7	6.0	F probak rom contro
Group Comparison St	1S		Σ	2	10	3.3	8.0	0.7	6.0	0.92 Df = $5/49$ gnificantly different f
OF RESEARCH RV GP O, CA 94129			Controls from group:	Control	15	3.0	9.0			ratio = 0. p mean is sign
LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	RAT/SPRAGUE-DAWLEY	·	Organ: ADRENAL GLANDS	Group	Number/group	Mean	Standard deviation	Group diff.@ P=.05	Group diff.@ Pm.01	Analysis of variance: Fratio = Note: a * indicates group mean is

Organ: TESTIS	Controls from group: 1	group: 1	Data nonhomogeneous by B	artlett's	test (modified	T test)
Group	Control	7	· •	7	· · · · · · · · · · · · · · · · · · ·	
Number/group	15	10	10	10	יאי פ	, v
Mean	164.4	162.8	165.1	165.2	132.2	166.7
Standard deviation	14.3	8.4	27.8	12.4	55.1	15.9
Group diff.@ P=.05		6.6	21.4	11.9	0.69	21.2
Group diff.@ P=.01		14.0	30.6	16.8	114.6	34.4

Analysis of variance: F ratio = 1.90 Df = 5/49 F probability = 0.111Note: a * indicates group mean is significantly different from control at level of significance shown.

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAMLEY	UTE OF RESEARCH SERV GP 1SCO, CA 94129	;	Group Comparison Statistics for & Organ to Brain Weight Ratio Study Number: 86005 Report includes all dead animals (All subgroups) Study Start Date: 10-Dec-86	Organ to Brain We 86005 Imals (All subgro 10-Dec-86	ight Ratio	PRINTED: 14-May-90 Page: 4 SUBCHRONIC/180 DAY FREDING
Organ: SPLEEN	Controls fr	M a Controls from group: 1 Da	Male Animals Data homogeneous by Barclett's test (Dunnett's Ttest)	l s Bartlett's test	(Dunnett's T	test)
Group	Control	2	3	7	8	6
Number/group	15	10	10	10	'n	· so
Mean	43.	46.	45.	41.	36.	37.
Standard deviation	7.	7.	•	10.	2.	11.
Group diff.@ P=.05		œ	.8	.8	11.	
Group diff.@ P=.01		10.	10.	10.	13.	13.
Analysis of variance: F ratio = 1.82 Df = $5/49$ F probability = 0.126 Note: a * indicates group mean is significantly different from control at level of significance shown.	Fratio = l. up mean is sign	1.82 Df = 5/49 F probability = 0.126 ignificantly different from control at level of	F probability from control at	= 0.126 level of signific	ance shown.	

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	ıI	ıcider	s es	Repo	y Rep Stu	Incidence Summary Report for Gross Necropsy Observations Study Number: 86005 Report includes all dead animals	PRINTED: 14-May-90 Page: 1
RAT/SPRAGUE-DAWLEY	 	1		St	ndy s	10-Dec-86	SUBCHRONIC/180 DAY FEEDING
			Males	1	! ! !	\$ \$	
	Ct.1s 15	2 10	3	10	8 S	Q (2)	
KIDNEY			1				1
CYST(S)	00	00	00	0 0	- 0	1	
LIVER ENLARGED	0	o	-	-	-		
ABNORMAL PIGMENTATION	00	000	0	. 0 -	0 - 1	0	
LYMPH NODES ENLARGED	J	0	0	0	0	0	
SKIN ALOPECIA	0	0	H	0	0	0	
SPLEEN ENLARGED (SPLENOMEGALY)	00	- 0	00	0 1	00	0	
TESTIS ATROPHIC/SMALL, UNILATERALLY ATROPHIC/SMALL, BILATERALLY	00	00	0	00	0 7	0	
WHOLE BODY NO LESIONS RECOGNIZED	14	σ,	80	σ	٣	q	

Appendix O (cont.): PATHOLOGY

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP. PATH SERV GP	Incidence Summary of Microscopic Observations Study Number: 86005	Observatio	s uc		PRINTED: 15-May-90 Page: 1
PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAMLEY	All Diagnoses Study Start Date: 10-Dec-86	98-3	, , ,	† 	SUBCHRONIC/180 DAY FEEDING
Notes: Animals = Interim sacrifice 1		- An 1 ma	s .		fected
Controls from group(s): 1	Animal sex: Dosage group:	ctls	2 2		7
Tissues With Diagnoses	No. in group:	10	10	10	10
ADRENAL GLANDS	Number examined:	6	10	10	6
AORTA	Number examined:	6	80	10	10
BONE, FEMUR	Number examined:	co	١	6	6
BONE MARROW	Number examined:	10	6	6	10
BKAIN	Number examined:	10	10	10	. 01
BONE, STERNUM	Number examined:	10	80	6	10
BONE, VERTEBRAE	Number examined:	10	١	6	10
CECUMSUBMUCOSA	Number examined:	10	10	000	10
CERVICAL LYMPH N	Number examined:	∞ 4.	e e	2 2	₩ ₽
COLON SUBMUCOSA	Number examined:	10	10	10	10 0
DIAPHRACMINFLAMMATION AND MYOFIBER DEGENERATION, CHE	Number examined: CHRONIC	10	0 0	10	10 0
DUODENUM	Number examined:	10	10	10	10

Note: Entries flagged with a - (minus) are significantly different from control at the 0.05 level using the Kolmogorov-Smirnov two tailed test.

Note: Entries flagged with a - (minus) are significantly different from control at the 0.05 level using the Kolmogorov-Smirnov two tailed test.

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Appendix O (cont.): PATHOLOGY

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP	Incidence Summary of Microscopic Observations Study Number: 86005	proscopic Observati	s uo		PRINTED: 15-May-90 Page: 3
PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	All Diagnoses Study Start Date: 10-Dec-86	Ulagnoses : Date: 10-Dec-86	ı		SUBCHRONIC/180 DAY FEEDING
Notes: Animals a interim sacrifice)		am i m a	als	Af	fected
Controls from group(s): 1	Animal sex:	1	Æ	- 8	
Controls from group at	Dosage group:	Ctls	7	e	7
Tissues With Diagnoses	No. in group:	10	10	10	10
1	Number examined:	10	6	10	10
•		0	0	-	1
again	Number examined:	10	10	10	10
VACUOLIZATION FOCAL		-	0	0	1
INFLAMMATION, CHRONIC, MULTIFOCAL		9	ო	6-	4
NECROSIS, ACUTE			٦,	۰ ۲	
THROMBOSIS, PORTAL VEIN		0	۰.	٠,	ɔ (
ARTERITIS, CHRONIC		-, •	, ,	٦ ,	D G
TELANGIECTASIS		•	>	>	>
SUMIT	Number examined:	10	10	10	10
HYPERPLASIA, BALT		2	0	7	
GRANULOMA (S)		00	0 0		5 0
ALVEOLAR HISTIOCTIOSIS		•	•		
MIDDLE EAR(S)	Number examined:	S	S	9	7
MESENTERY	Number examined:	0	-	-	
INFLAMMATION, GRANULOMATOUS		0	۰ .	- - 0	
ARTERITIS, CHRONIC		9	- 4	5	
MAMMARY GLAND	Number examined:	9	٢	S	₹
MESENT LYMPH NOD	Number examined:	7	10	10	10
PANCREAS	Number examined:	10	10	10 5	10 4

Note: Entries flagged with a - (minus) are significantly different from control at the 0.05 level using the Kolmogorov-Smirnov two tailed test.

DIV OF RES SUPP, PATH SERV GP	Incidence Summary of microscopic observations Study Number: 86005 All Discopeses	: 86005			Page: 4
PRESIDIO OF SAN FRANCISCO, CM 34123 RAT/SPRAGUE-DAWLEY	Study Start Date:	: 10-Dec-86			SUBCHRONIC/180 DAY FEEDING
Notes: Animals = Interim sacrifice 1		An Ima		A E	ected
Controls from group(s): 1	Animal sex:	1	π - σ (i vo c	r
Tissues With Diagnoses	Dosage group: No. in group:	Ct.18	10	10	10
PITUITARY GLAND	Number examined:	6	80	10	8 0
	Number examined:		2	00	
PANCREATIC LN	Number examined:	00	00	00	0 0
(OSTATE	Number examined:	10	6	10	10
PARATHYROID	Number examined:	9	80	9	80
RECTUM	Number examined:	æ	10	ю	S
SPINAL CORD	Number examined:	10	7	65	10
SALIVARY GLAND	Number examined:	10	10	10 6	10 7
SKININFLAMMATION, CHRONIC	Number examined:	10	010	10	10
SKELETAL MUSCLE	Number examined:	10	7	6	10
SCIATIC NERVE	Number examined:	10	7	6	10
SOLEUS MUSCLE	Number examined:	10	10	10	10 1

Appendix O (cont.): PATHOLOGY

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	Incidence Summary of Microscopic Observations Study Number: 86005 All Diagnoses	roscopic Observation r: 86005	s c		PRINTED: 15-May-90 Page: 5
RAT/SPRAGUE-DAWLEY	Study Start Date: 10-Dec-86	e: 10-Dec-86		SU	SUBCHRONIC/180 DAY FEEDING
Notes: Animals - interim sacrifice 1 Controls from group(s): 1	Andrew April 1	An ima		A f f e	c t e d
Tissues With Diagnoses	Dosage group:	Ct 1s 10	2 2 1 5 10 10 10 10 10 10 10 10 10 10 10 10 10	3 3 10	7
SPLEEN INCREASED BROWN PIGMENT IN MACROPHAGES	Number examined:	9	10	10 1	01
STOMACH	Number examined:	10	10	10 10	0
TESTIS SEMINIFEROUS EPITHELIUM	Number examined:	10	10 0	10 1	0.2
THYROID GLAND	Number examined:	10	10	10 10 1 3	
THYMUS	Number examined:	8	6	10	
TRACHEA	Number examined:	10	10	10 10	
TURBINATESIYMPHOCYTIC	Number examined:	on so	60 m	10 10	
URINARY BLADDER	Number examined:	6	10	10 9	
Note: Entries flagged with a - (minus) are significantly different from control at the 0 Os level meigre the 20	nificantly different from c	The Contract of the Contract	1000		

(minus) are significantly different from control at the 0.05 level using the Kolmogorov-Smirnov Entries flagged with a two tailed test.

Appendix O (cont.): PATHOLOGY

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	Incidence Summary of Microscopic Observations Study Number: 86005	oscopic Observations: 86005		PRINTED: 15-May-90 Page: 6
RAT/SPRAGUE-DAWLEY	Study Start Date: 10-Dec-86	: 10-Dec-86		SUBCHRONIC/180 DAY FEEDING
Notes: Animels = final sacrifice only Controls from group(s): 1	Animal sex:	An imal	S A C	fected
Tissues With Diagnoses	Dosage group: No. in group:	Ct1s 5		5
ADKENAL GLANDS	Number examined:		5	5
AORTA	Number examined:	τ.	٧٢	S
BONE, FEMUR	Number examined:	4	4	S
BONE MARROW	Number examined:	ĸ	2	S
BRAIN	Number examined:	S	2	V
BONE, STERNUM	Number examined:	S	5	5
BONE, VERTEBRAE	Number examined:	S	κ	S
CECUMSUBMUCOSA	Number examined:	\$ 0	20	80
CERVICAL LYMPH N	Number examined:	n 3	е ч	m 0
COLONSUBMUCOSA	Number examined:	9	0 0	s 0
DIAPHRAGMINTERER DEGENERATION, CHR	Number examined:	s O	s o	sn O
DUODENUM	Number examined:	ĸ	\$	5
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

Note: Entries flagged with a - (minus) are significantly different from control at the 0.05 level using the Kolmogorov-Smirnov two tailed test.

Appendix O (cont.): PATHOLOGY

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP	Incidence Summary of Microscopic Observations Study Number: 86005	oscopic Observations: 86005	PRINTED: 15-May-90 Page: 7
PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAMLEY	All Diagnoses Study Start Date: 10-Dec-86	. 10-Dec-86	SUBCHRONIC/180 DAY FEEDING
Notes: Animals a final sacrifice only		- X	Affected
Controls from group(s): 1	Animal sex:	Ctls 3 b 1 cm	t 4
Tissues With Diagnoses	No. in group:	5 5	5
EXTEN DIG LONG M	Number examined:	5 5	5
	Number examined:	0 5	5
EPIDIDYMUS	Number examined:	1 0 0	
ESOPHAGUS	Number examined:	5 5	ď
EYES & OPTIC N	Number examined:	5	ਧ
HEART	Number examined:	5 5 4 1 1 0	5 0 1
11.ЕОМ	Number examined:	5 5	ď
JEJUNUM	Number examined:	. 4	ς.
KIDNEY CORTICAL LYMPHOCYTE AGGREGATES PROGRESSIVE RENAL DISEASE PYELONEPHRITIS, ACUTE INFARCT MINERALIZATION, PELVIS DILATED RENAL PELVIS	Number examined:	5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5 0 0 w

Note: Entries flagged with a - (minus) are significantly different from control at the 0.05 level using the Kolmogorov-Smirnov two tailed test.

DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	Incidence Summary of Microscopic Study Number: 86005	croscopic Observations er: 86005 moses	PRINTED: 15-May-90 Page: 8
RAT/SPRAGUE-DAWLEY	Study Start Date: 10-Dec-86	e: 10-Dec-86	SUBCHRONIC/180 DAY FEEDING
Notes: Animals = final sacrifice only Controls from group(s): 1	Animainex	Animal S	Affected
Tissues with Diagnoses			η σ.ν.
N, CHRONIC	Number examined:	5 5	5
•	Number examined:		s O
INFLAMMATION, CHRONIC, MULTIFOCAL NECROSIS, ACUTE THROMBOSIS, PORTAL VEIN		. O G	100
ARTERITIS, CHRONIC TELANGIECTASIS			.
LUNGSHYPERPLASIA, BALT GRANULOMA(S) ALVEOLAR HISTIOCYTOSIS	.Number examined:	N O O O	v, O O O
MIDDLE EAR(S)	Number examined:	2 2	2
MESENTERY	Number examined:	0 0	0
MAMMARY GLAND	Number examined:	5 3	S
MESENT LYMPH NOD	.Number examined:	5	S
PANCREAS	Number examined:	ν <u>Φ</u>	3.5
PITUITARY GLAND	Number examined:	5 5 1 1 1	₹ 0

PATHOLOGY TABLE 5 (cont.)

	Incidence Summary of Microscopic Observations Study Number: 86005 All Diagnoses Study Start Date: 10-Dec-86	copic Observations 86005 es 10-Dec-86		PRINTED: 15-May-90 Page: 9 SUBCHRONIC/180 DAY FEEDING
Notes: Animals = final sacrifice only Controls from group(s): 1 T is sues With Diagnoses	Animal sex: Dosage group: No. in group:	An i aa l s Ctls 5	1 e s 8 9 5	e c t e d
PREPUTIAL GLAND INFLAMMATION, CHRONIC	Number examined:		0 1	
PANCREATIC LNBROWN PIGMENT IN MACROPHAGES	Number examined:	00	0 1	
PROSTATE	Number examined:	5	5 5	
PARATHYROID	Number examined:	3	4	
RECTUM	Number examined:	Э	4	•
SPINAL CORD	Number examined:	S	5 5	
SALIVARY GLAND	Number examined:	এ ব্	3 3	
SKIN CHRONIC	Number examined:	\$ 0	5 5 0 1	
SKELETAL MUSCLE	.Number examined:	4	4 5	
SCIATIC NERVE	Number examined:	4	4 5	
SOLEUS MUSCLE	Number examined:	\$ 0	5 5	
SPLEENINCREASED BROWN PIGMENT IN MACROPHAGES	Number examined:	5 2	5 5 2	
STOMACH	Number examined:	S	5 5	

Note: Entries flagged with a - (minus) are significantly different from control at the 0.05 level using the Kolmogorov-Smirnov two tailed test.

Appendix O (cont.): PATHOLOGY

DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	Study Number: 86005 All Diagnoses	Study Number: 8605 All Diagnoses		PRINTED: 15-May-90 Page: 10
RAT/SPRAGUE-DAWI.EY	Study Start Date: 10-Dec-86	e: 10-Dec-86		SUBCHRONIC/180 DAY FEEDING
Notes: Animals = final sacrifice only Controls from group(s): 1	Animal sex:	Animal	A 4	Affected
Tissues With Diagnoses	Dosage group: No. in group:	ctls 5	; ; & v.	9. 3.
TESTIS DEGENERATION, SEMINIFEROUS EPITHELIUM	Number examined:	5	5	\$ 0
THYROID GLAND	Number examined:	S C	sε	SO CE
THYMUSTHYMUS	Number examined:	4	2	S
TRACHEA	Number examined:	S	δ	S
TURBINATESIYMPHOCYTIC	Number examined:	v, es	% O	3
URINARY BLADDER	Number examined:	ક	'n	5

Note: Entries flagged with a - (minus) are significantly different from control at the 0.05 level using the Kolmogorov-Smirnov two tailed test.

nicroscopic diagnoses PRINTED: 29-May-90 Page: 1 iy SUBCHRONIC/180 DAY FEEDING	Dose level: Control Terminal body weight (kms): 0.74	Correlated microscopic observations	S, marked
Individual anim	ale Group: 1 nterim sacrifice 1		erate/ BOTH ARE 1 CM IN DIAMETER PLASMACYTOSIS, marked
LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	Animal: 86D00576 Sex: Male Day of death: 147 Status: Inte	Tissue Gross observations /	CERVICAL LYMPH N ENLARGED, Model

LETTERMAN ARMY INSTITUTE OF RESEARCH IN DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRGUE-DAWLEY	OF RESEARCH N GP	dividua	mal report of Study Tissues With C	Individual animal report of correlated gross and microscopic diagnoses Study Number: 86005 Tissues With Gross Observations Only Study Start Date: 10-Dec-86	olc diagnoses SUBCHR	ses PRINTED: 15-May-90 Page: 2 SUBCHRONIC/180 DAY FEEDING
Animal: 86000732 Sex: Ma Day of death: 149 Status: In	Sex: Status:	Sex: Male Status: Interim sacrifice	ice 1	Group: 2 Dose level: 1 (MG/KG,	Dose level: Terminal body weight (kms):	1 (MG/KG, 0.70
Tissue Gross observations /	Gross observations	s / Comments	1 1 1 1 1 1 1 1 1 1 1 1 1 1	Conments Correlated microscopic observations	olc observations	4 4 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
SPLEEN ENLAR	GED (SPLENOMEC		: : : : : : : : : :	Y), Moderate INCREASED BROWN PIGMENT IN MACROPHAGES. Slight.	ENT IN MACROPHAG	ES. Slight.

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY Animal: 86000534 Sex:	- ! ::	RCH Individual ani 29 Sex: Male	imal report o Stu Tissues Wit Study S	eport of correlated gross at Study Number: 8+005 ues With Gross Obse, clons Study Start Date: 10-Dec-86 Group: 3	Tissues With Gross Observious Study Number: 86.05 Tissues With Gross Observitions Only Study Start Date: 10-Dec-86 Group: 3	Individual animal report of correlated gross and microscopic diagnoses Study Number: 8+0.05 Tissues With Gross Obse, .tions Only Study Start Date: 10-Dec-86 Male Group: 3	SUBCHRONIC/180 DAY FEEDING
death: 149	Status: I	Status: Interim sacrifice 1	fice 1		Termina	Terminal body weight (kms):	0
Tissue Gross obs	Gross observations	s / Comments			Correlated mic	Correlated microscopic observations	ø
SKIN ALOPECI	ALOPECIA, Trace/ A ICM AB VENTRAL ABDOMINAL REGION.	~	ICM ABRASION IS PRESENT IN THE EGION.		NFLAMMATION, C	INFLAMMATION, CHRONIC, Moderate, Focal.	ocal.
TESTIS ATROPH) TESTIS	ATROPHIC/SMALL, UNII TESTIS IS ABOUT HALE	ATROPHIC/SMALL, UNILATERALLY, Moderate/ THE LEFT TESTIS IS ABOUT HALE THE SIZE OF THE RIGHT TESTIS.	LATERALLY, Moderate/ THE LEFT F THE SIZE OF THE RIGHT TESTIS		DEGENERATION, 9 Diffuse.	DEGENERATION, SEMINIFEROUS EPITHELIUM, Marked, Diffuse.	IUM, Marked,

LETTERMAN ARMY INSTITUTE OF RESEARCH Indi DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	F RESEARCH GP CA 94129	Individual animal report o Stu Tissues With	vidual animal report of correlated gross and microscopic diagnoses Study Number: 86005 Tissues With Gross Observations Only Study Start Date: 10-Dec-86	iagnoses SUBCHRO	ses PRINTED: 15-May-90 Page: 4 SUBCHRONIC/180 DAY FEEDING
Animal: 86000572 Sex: Male	Status: Inte		Group: 3 Terminal body weight (kms):	Dose level:	Dose level: 10 (MG/KG) /day ody weight (kms): 0.59
Tissue Gross observations / C	Gross observations / (Omments Correlated microscopic observations	bservations	
LIVER ENLARGE	ENLARGED, Mild/ EDGES		WERE ALSO ROUNDED. INFLAMMATION, CHRONIC, MULTIFOCAL, Slight, Multifocal.	ULTIFOCAL, S.	ight, Multifocal.

ABNORMAL PIGMENTATION, Mild/ CENTRAL PALLOR, MARKEDLY NO COFFELATED MICFOSCOPIC Observation ACCENTUATED ARCHITECTURE

Pp. idi. 0 (cont.): PATHOLOGY

dividual animal repo Tissues	ed gross and microscopic diagnoses 86005 servations Only 10-Dec-86	ses PRINTED: 15-May-90 Page: 5 SUBCHRONIC/180 DAY FEEDING
6D00616 Sex: Mal	Dose level: 10 Terminal body weight (kms): 0.70	10 (MG/KG)/day 0.70
s / Comment.s	Correlated microscopic observa	tions
SPLEEN NODULAR SURFACE, Mild/ 2X3MM NODULE ON THE VISCERAL SURFACE.	No correlated microscopic observation	
LIVER ENLARGED, Trace	No correlated microscopic observation	
CONGESTED, Trace	No correlated microscopic observation	

ses PRINTED: 15-May-90 Page: 6 SUBCHRONIC/180 DAY FEEDING	10 (MG/KG)/day 0.66	6	Slight, Multifocal.	ion	IUM, Marked,
ed gross and microscopic diagnoses: 86005 servations Only SUBCH	Dose level: Terminal body weight (kms):	0	INFLAMMATION, CHRONIC, MULTIFOCAL, Slight, Multifocal.	No correlated microscopic observation	DEGENERATION, SEMINIFEROUS EPITHELIUM, Marked, Diffuse.
report of Study ssues With Study Sta	Male Final sactifice	/ Comments	ENLARGED, Trace/ ACCENTUATED ARCHITECTURE, ROUNDED EDGES.	ION/ PALE	LATERALLY, Mild/ 1X1.5CM
	Sex: Status:	Tissue Gross observations	LIVER ENLARGED, Trace/ AC EDGES.	ABNORMAL PIGMENTATION/ PALE	TESTIS ATROPHIC/SMALL, BILATERALLY, Mild/ 1X1.5CM

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	UTE OF RESEARCH IN SERV GP ISCO, CA 94129	divi	ed gross and microscopic diagnoses 86005 servations Only 10-Dec-86	ses PRINTED: 15-May-90 Page: 7 SUBCHRONIC/180 DAY FEEDING
57	1 Sex: Ma	le nal	Group: 8 Dose level: 10 (MG/KG)/day sacrifice Terminal body weight (kms): 0.70	10 (MG/KG)/day 0.70
Tissue Gross observations /	Gross observations	Comments	Correlated microscopic observations	
KIDNEY DILATED RENAL PELVIS, KIDNEY IS 2 X 4 MM.	DILATED RENAL PELVIS KIDNEY IS 2 X 4 MM.	VIS, Trace/ THE PELVIS OF THE RIGHT	, Trace/ THE PELVIS OF THE RIGHT DILATED RENAL PELVIS, Present.	1

ses PRINTED: 15-May-90 Page: 8 SUBCHRONIC/180 DAY FEEDING	.: 10 (MG/KG)/day :: 0.73	.n.s	
Individual animal report of correlated gross and microscopic diagnoses Study Number: 86005 Tissues With Gross Observations Only Study Start Date: 10-Dec-86	Group: 9 Dose level: 10 (MG/KG)/day crifice Terminal body weight (kms): 0.73	Correlated microscopic observations	PROGRESSIVE RENAL DISEASE: Mild.
4 Individ	ale Inal sa	Gross observations / Comments	
LETTERMAN ARMY INSTITUTE OF RESEARCH INDIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	Animal: 86D00591 Sex: M Day of death: 175 Status: F	Tissue Gross observations /	KIDNEY CYST(S)

RAT/SPRAGUE-DAWLEY Animal: 86D00 Day of death: 1		PRESIDIO OF SAN FRANCISCO. CA 94129	o chay w	study number: 86005		Page: 1
Animal: 8 Day of death:	LEY		Study Start	Start Date: 10-Dec-86	SUB	SUBCHRONIC/180 DAY FEEDING
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	86000517	Sex: Male Status: Interim sa	Sacrifice 1	Group: 1 Terminal body	Dose level: body weight (kms):	il: Control (): 0.64
	//week	Organ N	<pre><< O r g a n W e Absolute Organ Weight (gms)</pre>	e i g h t s >> Relative % of Body Weight	Relative & of Brain Weight	Organ
05-Mav-87	147/21	I.TVER	16.3			1 1 1
78-×4X-50	147/21	NI ONE A	7.01	FC.2	4.06.	Low
05-May-87	147/21	HEART	3.0 	0.60	18/.3	Low
05-May-87	147/21	BRAIN		3.0	100.	FOM
05-May-87	147/21	ADRENAL GLANDS	0	500.0	0.001	roa.
05-May-87	147/21	TESTIS		0.515	161 11	TO.
05-May-87	147/21	SPLEEN	9.0	60.0	29.2	3001
Tissue	Finding, severity	< G	s o o o o o o o o o o o o o o o o o o o	ervations >> Gross Free-Text Comments		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		15	rree-Text		
WHOLE BODY	NO LESIONS RECOGNIZED	ECOGNIZED				
ne	Necropsy	>> \$0	Necropsy	жевов >>		
EYES & OPTIC N.	LEFT EYE DESTRO	LEFT EYE DESTROYED AT NECROPSY.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
Tissue		a 🔪	h o l o g y O b cial histological co	vat tons	^	
V		Required protocol tissue is missing	sing.			
THYMUS	Required pro	Required protocol tissue is missing	sing.			
MESENT LYMPH NOD	Required protocol tissue	tocol tissue is missing	slng.			
SPLEEN	Required prot	Required protocol tissue is missing	sing.			
LIVER	VACUOLIZATION	VACUOLIZATION, FOCAL, Slight, Focal	ocal.			
PANCREAS	INFLAMMATION,	INFLAMMATION, CHRONIC, Mild, Multifocal	ltifocal.			

LETTERMAN ARM) DIV OF RES SUF PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	:SEARCH 94129	Individual Ang Study P	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 2
RAT/SPRAGUE-DAWLEY	AWLEY		Study Start	Start Date: 10-Dec-86	SUB	SUBCHRONIC/180 DAY FEEDING
Animal: Day of death:	86D00532 L47	Sex: Male Status: Interim sacrifice		Group: 1 Terminal	Dose level: body weight (kms):	1: Control
Date	Day/week of Study	Organ Na	Absolute Organ	e i g h t s >> Relative t of Body Weight	Relative & of Brain Weight	Organ
05-May-87	147/21	LIVER	27.1	3.63	1234.1	
05-May-87	14//21	KIDNEY	6.4	0.58	196.1	High
05-May-87	147/21	REAKI	æ 	0.24	79.9	Low
05-May-87	147/21	ADRENAL GLANDS	7·7 0 0	67.0	100.0	Low
05-May-87	147/21		3,64	0.488	2.69 165.63	
10-Kan-co	17//51	SPLEEN	1.1	0.15	50.2	
Tissue	Finding, specity	<pre><< G r erity</pre>	sq0 sso	ervations >> Gross Free-Text Comments		
WHOLE BODY	NO LESIONS RECOGNIZED	ECOGNIZED		1		
Tissue			Necropsy	же я о в >>		
No necropsy me	No necropsy memos recorded on animal	animal	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		• • • • • • • • • • • • • • • • • • • •	
Tissue	Histopatholog	<pre><< Pathologic diagnoses / Special histological</pre>	_	servations mments	^	
HEART		ight, TION,	Multifocal. Slight, Multifocal.	! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !		
LUNGS	HYPERPLASIA,	HYPERPLASIA, BALT, Slight.				
SPLEEN	INCREASED BRO	INCREASED BROWN PIGMENT IN MACROP	MACROPHAGES, Mild.			
KLUNEY	CORTICAL LYMP PROGRESSIVE R	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Multifocal. PROGRESSIVE RENAL DISEASE, Slight, Multifocal.	TES, Slight, Multifocal. Slight, Multifocal.			
EPIDIDYMUS	LYMPHOCYTE IN	LYMPHOCYTE INFILTRATION, Slight, Focal	Focal.			
TURBINATES	INFLAMMATION,	INFLAMMATION, LYMPHOCYTIC, Mild,	Mild, Multifocal.			

LETTERMAN ARMY INSTITUTE OF RI DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	Individual Animal Study Num	Individual Animal Data Dump Table Study Number: 86005	PRINTED: 15-May-90 Page: 3
RAT/SPRAGUE-DAWLEY		Study Start Da	Study Start Date: 10-Dec-86	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00532 Day of death: 147	00532 Sex: Ma Status: In	Sex: Male Group: 1 Status: Interim sacrifice 1	p: 1 Terminal body	Dose level: Control Terminal body weight (kms): 0.75
Tissue		Pathology Observations >>>	ervations >> nents	Pathology Observations >> ses / Special histological comments
BONE, FEMUR		ue is missing.] 4 2 2 2 2 1 4 3 3 4 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
EXTRAOCULAR MM	Miscellaneous. MYOPATHIC CHANGE, Slight.	ρt.		

RAT/SPRAGUE-DAWLEY Animal: 86D0C Day of death: 147	C C C C C C C C C C C C C C C C C C C	PRESIDIO OF SAN FRANCISCO, CA 94129		Study	Study Number: 86005		Page: 4
Animal: 6 Day of death: 1	WLEY			Study Star	Start Date: 10-Dec-86	SUB	SUBCHRONIC/180 DAY FEEDING
	86D00538 147	Sex: Male Status: Inte	rim	G G Sacrifice 1	Group: 1 Termin	Dose level: Terminal body weight (kms):	1: Control 1: 0.65
Date	بب	Orga	. E	Organ Absolute Or Weight (gm	e i g h t s Relative Body We	Relative % of Brain Weight	Organ Status
U5-Mav-87	147/21	TIVER	!	21.0	2 03		
05-May-87	147/21	KIDNEY		3.8	6.0	179.3	High
05-May-87	147/21	HEART		1.7	0.27	81.3	Low
05-May-87	147/21	BRAIN		2.1	0.33	100.0	Low
05-May-87	14//21	ADRENAL	GLANDS	0.05	0.008	2.52	
05-May-87	147/21	SPLEEN		6.0 6.0	0.14	41.9	
Tissue	Finding, severity	everity	1 9 >>	s q 0	ervations Gross Free-Text Comme	^^	
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
WHOLE BODY	NO LESIONS	NO LESIONS RECOGNIZED					
Tissue	Necropsy memos	емоз	¥	Necropsy	жево s >>		
ropsy		n animal	† † † † †		; } 1 1 1 1 1 1 1 1 1 1 1 1 1	· · · · · · · · · · · · · · · · · · ·	
Tissue	Histopatho	<< I Histopathologic diagnoses	Patho] s/Special	o l o g y O al histological	bservations comments	^	
PARATHYROID		Required protocol tissue	is missing	ing.	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	1	
SALIVARY GLAND	INFLAMMATI	INFLAMMATION, CHRONIC, Mild	ild.				
HEART	INFLAMMATI	INFLAMMATION, CHRONIC, Mild, Focal	ild, Foc	al.			
MESENT LYMPH NOD		Required protocol tissue	is missing	ing.			
SPLEEN	INCREASED	INCREASED BROWN PIGMENT	IN MACROPHAGES,	PHAGES, MIld.			
KIDNEY	CORTICAL LY	CORTICAL LYMPHOCYTE AGGREGATE: PROGRESSIVE RENAL DISEASE, Sligh		TEN Slight, Multifocal Slight, Multifocal.			
URINARY BLADDER		Required protocol tissue	is missing	· bu			

LETTERMAN ARMY INSTITUTE OF R DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA	ESEARCH 94129	Individual Animal Data Dump Table PAINTED: 15-May-90 Study Number: 86/05
RAT/SPRAGUE-DAWLEY		Study Start Date: 10-Dec-86
Animal: 86D0053R Day of death: 147	0053P Sex: Male Status: Interim sacrifi	
Tissue	ě	Pathology Observations >>
EPIDIDYMUS	THELIUM,	Mild, Focal.
PANCREAS	INFLAMMATION, CHRONIC, Mild, Multifocal.	cal.
TURBINATES	INFLAMMATION, LYMPHOCYTIC, Mild, Multifocal.	Lifocal.
BONE, FEMUR	Required protocol tissue is missing.	
CERVICAL LYMPH N	Miscellaneous. PLASMACYTOSIS, MEJULLARY, Moderate.	

LETTERMAN ARMY DIV OF RES SUP PRESIDIO OF SAU	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	.SEARCH 94] 29	Individual Ar Study	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 6
RAT/SPRAGUE-DAWLEY			Study Start	rt Date: 10-Dec-86	SUB	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00558 Day of death: 147		E .	sacrifice 1	Group: 1 Terminal	Dose level body weight (kms)	1: Control
Date	Day/week of Study	Organ Na	Organ Weight (gms,	feights >> Relative Nof Body Weight	Relative 4 of Brain Weight	Organ Status
- B - N - S - C	16/67	11000		1 1 6	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
(0- Hay -0)	17/141	LIVER	19.3	3.21	961.6	Low
05-May-87	14//21	KIDNEY	3.7	0.61	182.4	High
05-May-07	17//61	HEAKT	1.1	0.28	83.5	Low
70-Yell-CO	14//21	BRAIN ADDENAT OF AND C	0.2	0.33	300.0	Low
05-May-87	147/21		0.00	010.0	3.04	
05-May-87	147/21	SPLEEN	1.0	0.16	48.3	
Tissue	Finding, severity	< <pre><< G r city</pre>	8 d O 8 8 8 0	ervations >> Gross Free-Text Comments	s	
WHOLE BODY	NO LESIONS RECOGNIZED	COGNIZED				
Tissue		*	Necropsy	Me a o s >>		
No necropsy memos	nos recorded on animal	limal	# 1	,	1	1
i		а.	1 0 g y 0	bservations	^	
Tissue	Histopathologic diagnoses	c diagnoses / Special	histological	comments		
THYROID GLAND		Multifocal.		- #	1	\
PARATHYROID	Required protocol tissue	ocol tissue is missing	ing.			
SALIVARY GLAND	INFLAMMATION, CHRONIC, Mi	CHRONIC, Mild, Multifocal	:ifocal.			
MESENT LYMPH NOD	OD Required protocol tissue	ocol tissue is missing	ing.			
SPLEEN	INCREASED BROWN PIGMENT I	IN PIGMENT IN MACROPHAGES,	PHAGES, Moderate.			
LIVER	INFLAMMATION, CHRONIC, MU	CHRONIC, MULTIFOCAL,	L, Slight, Multifocal	ocal.		
TURBINATES	INFLAMMATION, LYMPHOCYTIC,	LYMPHOCYTIC, Slight,	i, Multifocal.			

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP	NSTITUTE OF RESEA		Individual Animal Data Dump Table Study Number: 86005	PRINTED: 15-May-90 Page: 7
RAT/SPRAGUE-DAWLEY	EY		Study Start Date: 10-Dec-86	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00558 Sex: Mal Day of death: 147 Status: Int	00558	ட பே ப	Group: 1 Term	Group: 1 Dose level: Control frim sacrifice 1 Terminal body weight (kms): 0.60
Tissue	Histopathologic	. 60	Pathology Observations >>> / Special histological comments	Pathology Observations >> s/Special histological comments
ADRENAL GLANDS	Required protocol tissue	col tissue is missing.		is missing.

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	INSTITUTE OF PATH SERV FRANCISCO.	F RESEA GP CA 941	.ксн 29		Individual Ans	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 29- Paye: 8	29-May-90 8
RAT/SPRAGUE-DAWLEY	l.ey				Study Start	Start Date: 10-Dec-86	ins .	SUBCHRONIC/180 DAY	DAY FEEDING
Animal: 86D00576 Day of death: 147	6D00576 47	Sta	Sex: Male Status: Interim sacrifice	sacrif		Group: 1	Dose level: Terminal body weight (kms):	el: Control s): 0.74	! ! ! !
	Day/week of	Study	rgan	; ; ;	Organ Wasolute Organ Weight (gms)	e i g h t s >> Relative t of Body Weight	Relative & of Brain Weight	Organ	
05-May-87	147/21	1	LIVER		26.5	85 6	1106 0	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	
05-May-87	147/21		KIDNEY		. 4	9 9 9	106.3	1-71	
05-May-87	147/21		HEART		2.0	0:52	91.6	nign 191	
05-May-87	147/21		BRAIN		2.2	0.30	0.001	* C	
05-May-87	147/21		ADRENAL GLANDS	NDS	90.0	600.0	2 C C C		
05-May-87	147/21		TESTIS		3.88	0.523	174.88		
05-May-87	147/21		SPLEEN		1.0	0.13	42.9		
Tissue	Finding,	severity	¢	0 1 9	8 Q O S S	rvatłons ss Free-Text Comme	>> nt.s		
г сумрн		Moder	ate		; 60	BOTH ARE 1 CM IN DIAMETER	STER.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1
Tissue		же во з		×	есгорзу	.< s: ○ E st E			
No necropsy memos recorded on animal	os recorded on animal	on anin	na l	!	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1
Tissue		ologic	<pre><< p a diagnoses / S</pre>	tho Special	l o g y O l histological	bservations comments	^		
SALIVARY GLAND	INFLAMMATION, CHRONIC, M	ION, CE	HRONIC, Mild,	ild, Multifocal	focal.	}	1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
HEART	INFLAMMATION, CHRONIC, CHRONIC MYOFIBER DEGENE	ION, CE YOFIBER	INFLAMMATION, CHRONIC, Slight, CHRONIC MYOFIBER DEGENERATION,		Multifocal. Slight, Multifocal.				
LUNGS	HYPERPLAS	IA, BAL	HYPENPLASIA, BALT, Slight, Multifocal	ıltífoc	sal.				
THYMUS	Required protocol tissue	protoco		is missing	· £				
KIDNEY	CORTICAL	LYMPHOC VE RENA	CORTICAL LYMPHOCYTE AGGREGATES, Mild, Multifo PROGRESSIVE RENAL DISEASE, Slight, Multifocal	SS, Mil	CORTICAL LYMPHOCYTE AGGREGATES, Mild, Multifocal. PROGRESSIVE RENAL DISEASE, Slight, Multifocal.				
EXTEN DIG LONG M		ION, CH	INFLAMMATION, CHRONIC, Mild, Focal	Focal.					

LETTERMAN ARMY INSTITUTE OF RED DIV OF RES SUPP, PATH SERV GP	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP DESCRIPTORS SAN FRANCESCO CA 94129	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 9
RAT/SPRAGUE-DAWLEY	, , , , , , , , , , , , , , , , , , ,	Study Start Date: 10-Dec-86		DAY FEEDING
Animal: 86D00576 Day of death: 147	00576 Status: I	Group: 1 Te	Dose level: Control Terminal body weight (kms): 0.74	
Tissue	Tissue Histopathologic diagnoses	<pre>Histopathologic diagnoses / Special histological comments</pre>	<pre>< Pathology 0 bservations >> oses / Special histological comments</pre>	† 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
CERVICAL LYMPH N Miscellaneous. PLASMACYTOSIS,	MEDULL	Marked.	ARY, Marked.	i i i i i i i i i i i i i i i i i i i
PREPUTIAL GLAND	Miscellaneous.			

LETTERMAN ARMY DIV OF RES SUP PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	SEARCH 94129	Individual Anii Study Ni	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 10
RAT/SPRAGUE-DAWLEY			Study Start	Date: 10-Dec-86	SUB	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00578 Day of death: 149	00578	Sex: Male Status: Interim sacrifice	· · · · · · · · · · · · · · · · · · ·	Group: 1 Termine	Dose level: Terminal body weight (kms):	1: Control 1: 0.62
			33 _	e i g h t s >> Relative * of	Relative & of	Organ
Date	Day/week of Study	Organ Name	Weight (gms)	Body Weight	Brain Weight	Status
05-May-87		ì	22.9	3.69	1173.8	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
05-May-87	147/21	KIDNEY	3.8	09.0	192.3	High
05-May-87	147/21	HEART	1.8	0.28	9.68	
05-May-81	147/21		2.0	0.31	100.0	Low
05-May-87	147/21	ADRENAL GLANDS	60.0	0.014	4.35	
05-May-87	147/21	TESTIS	3.07	0.493	156.93	
05-May-87	147/21	SPLEEN	1.0	0.16	50.8	
		1 9 >>	sq0 sso	ervations >>		
Tissue	Finding, severity	ity	Gr	Gross Free-Text Comments	ø	٠
WHOLE BODY	NO LESIONS RECOGNIZED	OGNIZED	1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Tissue	Necropsy	>	Necropsy	X 0 E 0 X		
0		lmal	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	
Tissue	Histopathologi	<pre><< P a t h o diagnoses / Special</pre>	o l o g y O al histological	bservations comments	^	
үко 1D	Required protocol tissue	col tissue is missing.	ing.	1 4 5 5 5 6 5 5 6 1 5 6 1 5 5 6 5 5 5 6 5 5 5 6 5 5 5 6 5 5 5 6 5	! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
SALIVARY GLAND	INFLAMMATION, CHRONIC, SI	CERONIC, Slight, M	ight, Multifocal.			
HEART	INFLAMMATION, CHRONIC, SI	CHRONIC, Slight, M	1ght, Multifocal.			
SPLEEN	INCREASED BROWN PIGMENT I	PIGMENT IN MACRO	N MACROPHAGES, Mild.			
LIVER	INFLAMMATION, C	CHRONIC, MULTIFOCA	INFLAMMATION, CHRONIC, MULTIFOCAL, Slight, Multifocal	al.		
KIDNEY	CORTICAL LYMPHOCYTE AGGRE PYELONEPHRITIS, ACUTE, MI	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Multifocal PYELONEPHRITIS, ACUTE, Mild, Focal.	Slight, Multifocal. al.			

LETTERMAN ARMY INSTITUTE OF RI DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	-	ndividual Animal Data Dump Table Study Number: 86005	PRINTED: 15-May-90 Paye: 11
RAT/SPRAGUE-DAWLEY	RAT/SPRAGUE-DAWLEY	Study	Study Start Date: 10-Dec-86	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00578 Day of death: 149	00578	Sex: Male Status: Interim sacrifice 1	Group: 1	le Group: 1 Dose level: Control terim sacrifice 1 Terminal body weight (kms): 0.62
Tissue	Histopathologic di	<pre><< P a t h o l o g y O b s e r v Histopathologic diagnoses / Special histological comments</pre>	Pathology Observations >>> / Special histological comments	Pathology Observations >> ses/Special histological comments
PANCREAS	INFLAMMATION, CHRONIC.	NIC. Moderate, Multifocal.	1	Moderate. Multifocal.

CERVICAL LYMPH N

Miscellaneous. PLASMACYTOSIS, MEDULLARY, Moderate.

CYST(S), PARS DISTALIS, Mild, Focal.

PITUITARY GLAND

LETTERMAN ARMY DIV OF RES SUP PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	ESEARCH 94129	Individual Animal Data Dump Study Number: 86005	al Data Dump Table mber: 86005		PRINTED: 15-May-90 Page: 12
RAT/SPRAGUE-DAWLEY	RAT/SPRAGUE-DAWLEY		Study Start Date:	Date: 10-Dec-86	SUB	SUBCHRONIC/180 DAY FEEDING
Animal: 86D Day of death: 149	Animal: 86D0C579 death: 149	le terim	Gro	Group: 1 Termina	Dose level: Terminal body weight (kms):	: Control
Date	Day/week of Study	Organ	Absolute Organ Weight (9ms)	ights >> Relative % of Body Weight	Relative t of Brain Weight	Organ Status
05-May-87	147/21	LIVER	23.5	3.48	1195.3	1 1 1 1 1 1 1
05-May-87	147/21	KIDNEY	3.6	0.53	183.0	
05-May-87	141/21	HEART	1.8	0.27	92.4	Low
05-May-87	147/21	BRAIN	2.0	0.29	100.0	To.
05-May-87	147/21	ADRENAL GLANDS	0.07	0.010	3.30	į
05-May-87	147/21	TESTIS	3.53	0.522	179.28	
05-May-87	147/21	SPLEEN	1.0	0.15	52.9	
Ti ssue	Finding, severity	erity << Gr	s q O s s o	ervations >> Gross Free-Text Comments	v	
WHOLE BODY	NO LESIONS RECOGNIZED	ECOGNIZED	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Tissue	Necropsy memos	\$ O	Necropsy	же в о s >>		
No necropsy memos	mos recorded on animal	animal		. S		
Tissue		<< p>c diagnoses /	ology O alhistological	bservations comments	^	
PARATHYROID	Required proto	Required protocol tissue is missing	ing.			
SALIVARY GLAND	INFLAMMATION, CHRONIC,		Slight, Multifocal.			
SPLEEN	INCREASED BRO	INCREASED BROWN PIGMENT IN MACROPHAGES,	PHAGES, Slight.			
TURBINATES	INFLAMMATION,	INFLAMMATION, LYMPHOCYTIC, Slight, Multifocal	t, Multifocal.			
PITUITARY GLAND		Required protocol tissue is missing.	ing.			

LETTERMAN ARMY DIV OF RES SUI	LETTERMAN AHMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	SEARCH 94129	Individual Ani Study N	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15- Page: 13	15-May-90 13
RAT/SPRAGUE-DAWLEY	WLEY		Study Start	Start Date: 10-Dec-86	SUBC	SUBCHRONIC/180 DAY	DAY FEEDING
Animal: 86D0 Day of death: 149	00584	Male Interim	sacrifice 1	Group: 1 Terminal	Dose level: body weight (kms):	1: Control : 0.70	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Date	į.		Organ Wabsolute Organ Weight (gms)	e i g h t s >> Relative i of Body Weight	Relative % of Brain Weight	Organ Status	!
05-May-87 05-May-87	147/21	LIVER	27.1	3.89	1288.5	 - - - -	
05-May-87 05-May-87	147/21	HEART Brain	1.9	0.27	89.4	Low	
05-May-87 05-May-87 05-May-87	147/21 147/21 147/21	ADRENAL GLANDS TESTIS SPLEEN	0.07 3.48 1.1	0.010 0.500 0.16	3.42 165.34 52.0		
Tissue	Finding, severity		s q O s s o	ervations >> Gross Free-Text Comments			
WHOLE BODY	NO LESIONS RECOGNIZED	COGNIZED	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
		>> >>	Necropsy	жевои >>			
No necropsy memo	No necropsy memos recorded on animal	nimal	1 1 1 1 1 1 1 1 1 1 1 1 1		• • • • • • • • • • • • • • • • • • •		
Tissue	Histopathologic diagno	p ses/	athology Ob Special histological co	bservations comments	^		
RY GLA	! !	Slight,	Multifocal.	1	t 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
HEART	INFLAMMATION, CHRONIC, CHRONIC MYOFIBER DEGEN	Slight, ERATION,	Multifocal. Slight, Multifocal.				
SPLEEN	INCREASED BROK	INCREASED BROWN PIGMENT IN MACROPHAGES, Mild	HAGES, Mild.				
LIVER	INFLAMMATION, CHRONIC, ACARTERITIS, CHRONIC, MO	INFLAMMATION, CHRONIC, MULTIFOCAL, E ARTERITIS, CHRONIC, Moderate, Focal.	, Elight, Multifocal al.	al.			
KIDNEY	CORTICAL LYMPI	CORTICAL LYMPHOCYTE AGGREGATES, S.	Slight, Multifocal.				
PANCREAS	INFLAMMATION, CHRONIC,	CHRONIC, Moderate, Multifocal	Multifocal.				

LETTERMAN ARM DIV OF RES SUI PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	RESEAR 3P	СН		Individual An Study	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-Ma Page: 14	15-May-90 14
RAT/SPRAGUE-DAWLEY	AWLEY				Study Star	Study Start Date: 10-Dec-86	SUBC	SUBCHRONIC/180 DAY FE	DAY FEEDING
• •	86000715) (Sex: Male Status: Interim		Gl Sacrifice 1	Group: 1 Termina	Dose level: Terminal body weight (kms):	1: Control	
Date	Day/week of Study	tudy	J.	Name	<pre><< 0 r g a n W -bsolute Organ Weight (gms)</pre>	e i g h t s >> Relative % of Body Weight	Relative % of Brain Weight	Organ Status	
05-May-87	147/21	[LIVER	!	20.9	3.53	1100.1	! ! ! !	
05-May-87	147/21		KIDNEY		3.7	0.63	196.5	High	
79-XPM-CO	147/21		HEART		1.5	0.26	80.5	Low	
05-May-87	14//21		BRAIN	CLANDS	1.9	0.32	100.0	Low	
05-May-87	147/21		TESTIS	ONUT .		110.0	3.33		
05-May-87	147/21		SPLEEN		0.8	0.14	42.9		
Tissue		i verit		9	ross Obs	ervations >> Gross Free-Text Comments	ท		
WHOLE BODY	NO LESIONS RECOGNIZED	RECOG	NIZED	!				*	;
		iemos		¥	Necropsy	¥. ∨ ∨ ∪ E ⊕ ¥.			
No necropsy me	No necropsy memos recorded on animal	n anim		# 1 6 1	6	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Tissue	<< Histopathologic diagnoses	logic (<< diagnoses	``\	h o l o g y O ecial histological	bservations comments	^		
THYROID GLAND	CYSILL, Mild, Focal.	111d, F.	Mild, Focal.	1 1 1					1 1
HEART	CHRONIC MY	OFIBER	DEGENERA	ATION,	CHRONIC MYOFIBER DEGENERATION, Slight, Multifocal.				
SPLEEN	INCREASED BROWN PIGMENT	BROWN !		IN MACE	IN MACROPHAGES, Slight.				
LIVER	NECROSIS, ACUTE, Slight,	ACUTE,	Slight,	Multifocal	focal.				
KIDNEY	PROGRESSIV.	E RENAI	L DISEASE	E, Mila	PROGRESSIVE RENAL DISEASE, Mild, Multifocal.				
PANCREAS	INFLAMMATION, CHRONIC, Mild, Multifocal	ON, CHE	JONIC, MI	11d, Mt	ultifocal.				
TURBINATES	INFLAMMATION, LYMPHOCYTI	ON, LYA		2, Mile	C, Mild, Multifocal.				

LETTERMAN ARMI DIV OF RES SUF PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	ESEARCH 94129		Individual Anir Study Ni	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 15	6-May-90
RAT/SPRAGUE-DAWLEY	AWLEY			Study Start	Study Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FEEDING	FEEDING
Animal: 860 Day of death: 149	00725	Status	Sex: Male Status: Interim sacrifice	1	Group: 1 Terminal	Dose level: Control Terminal body weight (kms): 0.65	Control 0.65	
Date	Day/week of Study		Organ Name	Organ We Absolute Organ Weight (gms)	e i g h t s >> Relative % of Body Weight	Relative & of Brain Weight	Organ Status	
05-May-87	147/21	: 35	LIVER	21.6	3.34	1053.4	Low	
05-May-87	147/21	HE	HEART	1.6	0.25	78.7	30	
05-May-87	147/21	BR	BRAIN	2.0	0.32	100.0	LOW	
05-May-87	147/21	A. TE	AURENAL GLANUS TESTIS	0.08 3.31	0.012	3.71		
05-May-87	147/21	SP	SPLEEN	0.9	0.13	42.3		
Tissue	Finding, severity	erity	9 ×>	oss Obse Gr	servations >> Gross Free-Text Comments			
WHOLE BODY	NO LESIONS RECOGNIZED	ECOGN12	ED.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	. †	(
Tissue	Necropsy memos	s o	*	Necropsy	₩ • • • • • • • • • • • • • • • • • • •			
No necropsy me	No necropsy memos recorded on animal	animal	i i i i i i	1		1		
Tissue	Histopatholog	gic dia	<pre><< p a t h or dependence </pre>	<pre><< P a t h o l o g y 0 b s e r Histopathologic diagnoses / Special histological comments</pre>	vations	^		
HEART	CHRONIC MYOF	IBER DE	DEGENERATION, S11	CHRONIC MYOFIBER DEGENERATION, Slight, Multifocal.	,		 	1 ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !

PATHOLOGY ANNEX B (cont.)

Required protocol tissue is missing.

TURBINATES

HEART KIDNEY

PYELONEPHRITIS, ACUTE, Mild.

CERVICAL LYMPH N Miscellaneous.
PLASMACYTOSIS, MEDULLARY, Moderate.

LETTERMAN ARM) DIV OF RES SUF PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	RСН 29	Individual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 16
RAT/SPRAGUE-DAWLEY	MLEY		Study Start	Study Start Date: 10-Dec-86	Ins	SUBCHRONIC/180 DAY FEEDING
Animal: 86Dl Day of death: 1/5	00540 Sta	Sex: Male Status: Final sacrifice		Group: 1 Termin	Dose level: Terminal body weight (kms):	sl: Control (): 0.66
Date .	Day/week of Study	Organ Name	Organ We Absolute Organ Weight (gms)	ights >> Relative % of Body Weight	Relative & of Brain Weight	Organ Status
05-May-87	147/21	LIVER	19.4	2.96	8 20 3	
05-May-87	147/21	KIDNEY	3.6	0.55	153.7	300
/8-YeM-CO	147/21	HEART	1.6	0.24	67.1	Low
0.5-May-87	141/21	BRAIN	2.3	0.36	100.0	Low
05-May-87	147/21	TESTIS	0.07	0.010	2.87	
05-May-87	147/21	SPLEEN	1.0	0.15	41.8	
Tissue	Finding, severity	.y << G r o	s s O b s	e f v a t i o n s >> Gross Free-Text Comments	> rs	
WHOLE BODY	NO LESIONS RECOGNIZED	NIZED			! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !	*
Tissue		× *	le c r o p s y	ж е в о s > >		
No necropsy me	No necropsy memos recolded on animal	la1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 t t t t t t t t t t t t t t t t t t t
Tissue		<pre><< P a t h o l o g y 0 Histopathologic dlagnoses / Special histological</pre>		bservations comments	^	
ROID	Required protoco	Required protocol tissue is missing.	9.	!		1
HEARI	INFLAMMATION, CHRONIC,	RONIC, Slight, Multifocal.	tifocal.			
THYMUS	Required protoco	Required protocol tissue is missing.	9.			
TESTIS	DEGENERATION, SE	DEGENERATION, SEMINIFEROUS EPITHELIUM, Slight, Multifocal.	IUM, Slight, Multi	focal.		
PANCREAS	INFLAMMATION, CHRONIC,	RONIC, Slight, Multifocal	tifocal.			

PATHOLOGY ANNEX B (cont.)

Required protocol tissue is missing.
Required protocol tissue is missing.

SCIATIC NERVE SKELETAL MUSCLE

LETTERMAN ARMY INSTITUTE OF REDIV OF RES SUPP, PATH SERV GPPESIDIO OF SAN FRANCISCO, CA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129		Individual Animal Data Dump Table Study Number: 96005	ple PRINTED: 15-May-90 Page: 17
RAT/SPRAGUE-DAWLEY	RAT/SPRAGUE-DAWLEY		Study Start Date: 10-Dec-86	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00540 Day of death: 175	0540	Status: Final sacrifice	Group: 1	le Group: 1 Dose level: Control nal sacrifice Terminal body weight (kms): 0.66
Tissue	kistopathologic diagno	<< Pathologoagnoses / Special hist	Pathology Observations >> ses / Special histological comments	Pathology Observations >> ses/Special histological comments
TURBINATES	INFLAMMATION, LYMPHOCY	HOCYTIC, Slight, Multifocal.	i focal.	TIC, Slight, Multifocal.

DIV OF RES SUP	DIV OF RES SUPP, PATE SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	29	Study Nu	Study Number: 86005		PRINTEU: 15-May-90 Page: 18
RAT/SPRAGUE-DAWLEY	WLEY		Study Start Date:	Date: 10-Dec-86	SUE	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00585 Day of death: 175	00585	Status: Final sacrifice	1	Group: 1	Dose level: Terminal body weight (kms):	1: Control 1: 0.52
Date	Day/week of Study	gan N	Organ We	1 g h t s >> Relative & of Body Weight	Relative & of Brain Weight	Organ Status
05-May-87		LIVER	14.3	2.77	639.6	30]
05-May-87	147/21	KIDNEY	2.8	0.55	126.7	
05-May=87	141/21	HEAKT	1.4	0.27	61.5	*O.T
05-May-87	147/21	ADRENAL CLANDS	0.05	5000	100.0	LOW
05-May-87	147/21	TESTIS	3.93	0.761	175.67	High
05-May-87	147/21	SPLEEN	7.0	0.14	33.1	
Tissue	Finding, severity	3 5 ×>	oss Obse Gro	ervations >> Gross Free-Text Comments	>> nts	٠
WHOLE BODY	NO LESIONS RECOGNIZED	GNIZED				
Tissue	Nectopsy memos	*	Necrops y	Memos >>		
ropsy		mal	* 1	6 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Tissue	Histopathologic	p d	logy O histological	bservations comments	^	
ARY GLAND	INFLAMMATION, CHRONIC,	HRONIC, Mild, Multifocal	ifocal.	\$		t
SPLEEN	INCREASED BROWN PIGMENT	PIGMENT IN MACROPHAGES,	HAGES, Slight.			
EPIDIDYMUS	MICROCYSTIC CHANGE, EPI LYMPHOCYTE INFILTRATION	THELIUM, , Slight,	Slight. Multifocal.			
PANCREAS	INFLAMMATION, CHRONIC,	HRONIC, Slight, Multifocal	ltifocal.			
TURBINATES	INFLAMMATION, L)	INFLAMMATION, LYMPHOCYTIC, Mild, Multifocal	Hultifocal.			
BONE, FEMUR	Required protoco	Required protocol tissue is missing	.9.			

LETTERMAN ARMY DIV OF RES SUPI PRESIDIO OF SAN	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	EARCH 4129	Individual Ani Study N	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 19
RAT/SPRAGUE-DAWLEY	1		Study Start	Study Start Date: 10-Dec-86	SUBCHI	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00614 Day of death: 175	00614	Sex: Male Status: Final sacrifice		Group: 1 Terminal body	Dose level: body weight (kms):	Control 0.88
Date	Day/week of Study		Organ M Absolute Organ Weight (gms)	e i g h t s >> Relative % of Body height	Relative & of Brain Weight	Organ Status
05-May-87	147/21	LIVER	25.7	2 94	0 2011	
05-May-87	147/21	KIDNEY	3.9	0.44	165.0	301
05-May-87	147/21	HEART	2.2	0.25	93.1	Low
05-May-87	147/21	BRAIN	2.3	0.27	100.0	30
05-May-87	147/21	ADRENAL GLANDS	0.05	0.006	2.31	10.1
05-May-87	147/21	TESTIS	4.46	0.509	190.97	: : :
05-May-87	147/21	SPLEEN	1.1	0.12	45.0	
Tissue	Finding, severity	'ity	s q O s s o	ervations >> Gross Free-Text Comments		,
WHOLE BODY	NO LESIONS RECOGNIZED	OGNIZED				***************************************
Tissue	Necropsy memos		Necropsy	жевоs >>		
No necropsy mem	v	imal	!	· · · · · · · · · · · · · · · · · · ·		; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;
Tissue	Histopathologi		o l o g y O ial histological	bservations comments	^	
ROID		ism	lng.			0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
SALIVARY GLAND	INFLAMMATION, CHRONIC,	CHRONIC, Mild, Multifocal	ifocal.			
LACRIMAL GLAND	INFLAMMATION, CHRONIC,	CHRONIC, Slight, Focal	ocal.			
HEART	INFLAMMATION, CHRONIC,	CHRONIC, Mild, Focal.	11.			
LIVER	TELANGIECTASIS, Slight,	, Slight, Focal.				
KIDNEY	CORTICAL LYMPHG	CORTICAL LYMPHOCYTE AGGREGATES, M	Mild, Multifocal.			
TURBINATES	INFLAMMATION,	INFLAMMATION, LYMPHOCYTIC, Mild, Multifocal.	Multifocal.			

LETTERMAN ARMY INSTITUTE OF RIDIV OF RES SUPP, PATH SERV GPPRESIDIO OF SAN FRANCISCO, CA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	А ВСИ 129	Individual Ani Study N	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 20
RAT/SPRAGUE-DAWLEY	ILEY	;	Study Start	Start Date: 10-Dec-86	SUB	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00647 Day of death: 175	00647	Sex: Male Status: Final sacrifice	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Group: 1	Dose level: Terminal body weight (kms):	1: Control 1: 0.67
Date	Day/week of Study		Organ W Absolute Organ Weight (gms)	e i g h t s >> Relative % of Body Weight	Relative % of Brain Weight	Organ
05-May-87 05-May-87	147/21	LIVER	20.8	3.09	919.9	LOW
05-May-87	147/21	HEART	7.7	0.26	7.97	Low
05-May-87	147/21	ADRENAL GLANDS	0.06	0.08	100.0	Low
05-May-87 05-May-87	147/21	TESTIS	3.49	0.520 0.13	2.35 154.92 40.2	
Tissue	Finding, severity	1 9 >>	. s d O	ervations >> Gross Free-Text Comments	> ts	
WHOLE BODY	NO LESIONS RECOGNIZED	OGNIZED		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	Necropsy	*	Necropsy	ж евов >>		
No necropsy memo	No necropsy memos recorded on animal	mal	· 1 · 1 · 1 · 1 · 1 · 1 · 1 · 1 · 1 · 1			
Tissue		Path ses/Speci	l o g y O histological	bservations comments	^	
ID GLAND	CYST(S), Slight, Focal,	, Focal,	. 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	
SALIVARY GLAND	INFLAMMATION, CHRONIC,	HRONIC, Slight, Multifocal	tifocal.			
HEART	INFLAMMATION, CHRONIC,	HRONIC, Mild, Multifocal.	focal.			
LIVER	INFLAMMATION, CHRONIC,		MULTIFOCAL, Mild, Multifocal	:		
KIDNEY	CORTICAL LYMPHO	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Focal.	ight, Focal.			
PANCREAS	INFLAMMATION, CHRONIC,	HRONIC, Mild, Multifocal	focal.			
PITUITARY GLAND	CYST(S), PARS DISTALIS,	ISTALIS, Mild, Focal.	.1.			

PRINTED: 15-May-90 Page: 21	SUBCHRONIC/180 DAY FEEDING	Dose level: Control Terminal body weight (kms): 0.67	^	
Individual Animal Data Dump Table Study Number: 86005	Study Start Date: 10-Dec-86	Group: 1	Pathology Observations >>> / Special histological comments	RY, Moderate.
LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129		Animal: 86D00647 Sex: Male Day of death: 175 Status: Final sacrifice	<< P a t h o l o g y O b s e r v Histopathologic diagnoses / Special histological comments	MEDULLA
LETTERMAN ARMY INSTITUTE OF RESEARCE DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	RAT/SPRAGUE-DAWLEY	Animal: 86D00647 Day of death: 175	Tissue	CERVICAL LYMPH N Miscellaneous. PLASMACYTOSIS,

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	Y INSTITUTE OF PP. PATH SERVIN FRANCISCO,	F RESEARC GP CA 94129	RCH 29		Individual Ani Study N	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 22
RAT/SPRAGUE-DAWLEY	AWLEY				Study Start	Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FEEDING
Animal: 86D Day of death: 175	86D00665 175	Sta	Sex: Male Status: Final	sacrifice		Group: 1 Terminal	Dose level: Terminal body weight (kms):	Control 0.66
Date	Day/week of	Study	l		<pre></pre>	e i g h t s >> Relative % of Body Weight	Relative % of Brain Weight	Organ Status
05-May-87	147/21		LIVER	!	20.6	3.11	913.1	Low
05-May-87	147/21		KIDNEY		3.3	0.50	147.7	
05-May-87	14//21		HEART		æ. (0.27	78.2	LOW
05-May-87	147/21		ADRENAL	BRAIN ADRENAL GLANDS	6.3	0.34	100.0	Low
05-May-87	147/21		TESTIS		3.76	0.567	166.42	
05-May-87	147/21		SPLEEN		0.7	0.11	32.2	
Tissue	Finding, severity	severí		ی ک	ross Obs.	ervations >> Gross Free-Text Comments		
WHOLE BODY	NO LESIONS RECOGNIZED	S RECO	SNIZED			* * * * * * * * * * * * * * * * * * *	;	
Tissue	Necropsy memos	тето \$		¥	Necropsy	₩ *^ % O E O E		
No necropsy memos		on anit	na.l	; ; ; ;	· · · · · · · · · · · · · · · · · · ·	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Tissue	ı	ologic	<< diagnose:	Pathos/Specia	logy O histological	servations omments	^	
SALIVARY GLAND		ION, CF	1	Slight, Focal	ocal.	1 1 1 7 3 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		1
HEART	INFLAMMATION, CHRONIC, Slight, CHRONIC MYOFIBER DEGENERATION,	ION, CH YOFIBER	HONIC, S.		Multifocal. Slight, Multifocal.			
SPLEEN	INCREASED BROWN PIGMENT	BROWN		IN MACRC	IN MACROPHAGES, Slight.			
LIVER	INFLAMMATION, CHRONIC,	ION, CE		JLTIFOCA	MULTIFOCAL, Slight, Multifocal	al.		
KIDNEY	CORTICAL LYMPHOCYTE AGGREGATES,	LYMPHOC	YTE AGGRE		Slight, Focal.			
PANCREAS	INFLAMMATION, CHRONIC,	TON, CH		derate,	Moderate, Multifocal.			
JEJUNUM	Required protocol tissue is missing.	protoce	l tissue	is miss	ing.			

PATHOLOGY ANNEX B (cont.)

PRINTED: 15-May-90 Page: 23	subchronic/180 DAY FEEDING	le Group: 1 Dose level: Control nal sacrifice Terminal body weight (kms): 0.66	4	Mild.
Individual Animal Data Dump Table Study Number: 86005	Study Start Date: 10-Dec-86	Group: 1 fice	Pathology Observations >>> ses / Special histological comments	
LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GF PRESIDIO OF SAN FRANCISCO, CA J4129	1	30665 Sex: Ma Status: Fi	<pre></pre>	
LETTERMAN ARMY INSTITUTE OF REDIV OF RES SUPP, PATH SERV GPPRESIDIO OF SAN FRANCISCO, CA	RAT/SPRAGUE-DAWLEY	Animal: 86D00665 Day of death: 175	Tissue	PREPUTIAL GLAND

LETTERMAN ARMY DIV OF RES SUPI PRESIDIO OF SAN	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	RCII	Individual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 24
RAT/SPRAGUE-DAWLEY	RAT/SPRAGUE-DAWLEY		Study Start	Study Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00503 Day of death: 148	00503	Sex: Male Status: Interim sacrifice		Group: 2 Termina	Dose level: Terminal body weight (kms):	1. (MG/KG)/day 0.65
. Date	Day/week of Study	Organ Name	Organ We Absolute Organ Weight (gms)	ights >> Relative % of Body Weight	Relative & of Brain Weight	Organ Status
05-May-87	147/21	LIVER	23.5	3.61	1045.3	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
05-May-87	147/21	KIDNEY	3.7	0.57	165.7	High
05-May-87	147/21	HEART	1.9	0.29	83.5	•
05-May-87	147/21	BRAIN	2.2	0.35	100.0	Low
05-May-87	147/21		0.05	0.008	2.18	
05-May-8/	147/21	TESTIS	3.38	0.520	150.56	
05-May-87	147/21	SPLEEN	0.8	0.13	36.8	
•		1 9 >>	oss Obse	ervations >>		
Tissue	Finding, severity	۲.	25	Gross Free-Text Comments		•
WHOLE BODY	NO LESIONS RECOGNIZED	SNIZED	, r 1	\$ 1 1 1 1 2 1 2 4 6 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;
	Necropsy memos	*	Necropsy	женоя >>		
No necropsy mem	No necropsy memos recorded on animal	na l		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Tissue	<< Histopathologic diagno	P ses /	logy 0 histological	bservations comments	^	
THYROID GLAND	CYST(S), Slight, Multi	Multifocal.	*	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
SALIVARY GLAND	INFLAMMATION, CHRONIC,	RONIC, Mild, Multifocal	focal.			
SPLEEN	INCREASED BROWN PIGMEN	PIGMENT IN MACROPH	T IN MACROPHAGES, Mild, Diffuse.	ė		
KIDNEY	CORTICAL LYMPHOC	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Focal	ight, Focal.			

PATHOLOGY ANNEX B (cont.)

INFLAMMATION, CHRONIC, Mild, Multifocal.
INFLAMMATION, LYMPHOCYTIC, Mild, Multifocal.

Miscellaneous. PLASMACYTOSIS, MEDULLARY, Slight.

CERVICAL LYMPH N

PANCREAS TURBINATES

LETTERMAN ARMY DIV OF RES SUPI	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP	ARCH	Individual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 25
PRESIDIO OF SAN FRO RAT/SPRAGUE-DAWLEY	PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	129	Study Start	Study Start Date: 10-Dec-86	ROBOR	SUBCHRONIC/180 DAY FEEDING
Animal: 8600515 Day of death: 148	 	Sex: Male Status: Interim sacri	sacrifice 1	Group: 2 Termin	Dose level: Terminal body weight (kms):	1. (MG/KG)/day 0.84
Date	Day/week of Study		Organ We Absolute Organ Weight (gms)	ights >> Relative % of Body Weight	Relative % of Brain Weight	Organ Status
05-May-87	147/21	LIVER	27.3	3.24	1126.5	Low
05-May-87	147/21	KIDNEY	4.1	0.49	169.8	ı
05-May-87	147/21	HEART	2.1	0.25	85.7	Low
05-May-87	147/21	BRAIN ADRENAL GLANDS	80.0	67.0	3.22	301
05-May-87	147/21	TESTIS	4.07	0.484	168.13	
05-May-87	147/21	SPLEEN	1.4	0.16	55.8	
200011	Tilding, severing	1.7	10 11 11 11 11 11 11 11 11 11 11 11 11 1			
WHOLE BODY	NO LESIONS RECOGNIZED	OGNIZED				
		¥	Necropsy	же в о s >>		
No necropsy memos	mos recorded on animal	imal				
		<pre><< P a t h o l o g y Histopuchologic diagnoses / Special histological</pre>		bservations comments	^	
SALIVARY GLAND	INFLAMMATION, CHRONIC,	CHRONIC, Slight, Multifocal	ultifocal.	9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
HEART	INFLAMMATION, CHRONIC,	CHRONIC, Mild, Focal.	al.			
PANCREAS	INFLAMMATION, CHRONIC,	CHRONIC, Mild, Multifocal.	:ifocal.			
COTON	GRANULOMA(S),	GRANULOMA(S), SUBMUCOSA, Mild, Multifocal	ultifocal.			
CERVICAL LYMPH N		Miscellaneous. PLASMACYTOSIS, MEDULLARY, Mild.				

LETTERMAN ARMY DIV OF RES SUP	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP	A RCH	Individual Anir Study N	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 26	May-90
RAT/SPRAGUE-DAWLEY	WLEY	671	Study Start	Study Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FEEDING	FEEDING
Animal: 86D Day of death: 148	00549	Sex: Male Status: Interim sacrifice 1	 	Group: 2 Termine	Dose level: Terminal body weight (kms):	1. (MG/KG)/day 0.60	(G) /day
Date .	Day/week of Study	Organ Name	Organ Absolute Organ Weight (gms)	e I g h t s >> Relative % of Body Weight	Relative % of Brain Weight	Organ Status	
05-May-87	147/21	LIVER	21.8	3.66	994.8	! ! !	
05-May-87	147/21	KIDNEY	3.7	0.62	167.8	H1gh	
05-May-87	147/21	HEART	1.6	0.26	71.1	Low	
05-May-87	147/21	BRAIN	2.2	0.37	100.0	Low	
05-May-87	147/21	ADRENAL GLANDS	0.07	0.011	2.97		
05-May-87	147/21	TESTIS	3.57	0.600	163.33		
05-May-87	147/21	SPLEEN	1.0	0.16	44.4		
Tissue	Finding, severity	< <pre><< G r ty</pre>	8 Q O S S O	servations >> Gross Free-Text Comments	, 9 1		
WHOLE BODY	NO LESIONS RECOGNIZED	KGNIZED		; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	,	*	1 2 1 1
Tissue	Necropsy memos	*	Necropsy	X 6 3 0 8 >>			
No necropsy memo	No necropsy memos recorded on animal	.mal	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1			
Tissue	<pre><< P Histopathologic diagnoses</pre>	•	athology Obser Special histological comments	Observations comments	^		
THYROID GLAND	CYST(S), Mild, Focal.	Focal.	#	1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	!

Appendix O (cont.): PATHOLOGY

LETTERMAN ARMY INSTITUTE OF R DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	:ARCH 1129	Individual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 27
RAT/SPRAGUE-DAWLEY	LEY		Study Start	Study Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FREDING
Animal: 86D00582 Day of death: 148	00582	Sex: Male Status: Interim sacrifice 1	1 1 1 1 1 1 1	Group: 2 Terminal	Dose level: Terminal body weight (kms):	1. (MG/KG)/day 0.64
Date : [Day/week of Study	0	<pre><< Or gan We Absolute Organ Weight (gms)</pre>	ights >> Relative & of Body Weight	Relative % of Brain Weight	Organ Status
05-May-87 05-May-87	147/21		23.7	3.68	1042.8	High
05-May-87	147/21	HEART		0.26 0.35	73.5	Low
05-May-87 05-May-87 05-May-87	147/21 147/21 147/21	ADRENAL GLANDS TESTIS SPLEEN	.NDS 0.05 3.36 0.8	0.008 0.523 0.13	2.34 148.15 35.9	
Tissue	Finding, severity		Gross Obse Gr	s e r v a t i o n s >> Gross Free-Text Comments		
вобу		OGNIZED	<pre></pre>	Xe Bos >>	1	
No necropsy memo	No necropsy memos recorded on animal	1mal				
Tissue	Histopathologic diagno	<pre></pre>	Pathology Obserses / Special histological comments	A t 1 0 C C C C C C C C C C C C C C C C C C	\$	
LIVER	INFLAMMATION, CHRONIC,		MULTIFOCAL, Slight, Multifocal.	л.		

LETTERMAN ARMY DIV OF RES SUP PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	ла ксн 129	Individual Ani	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	15-May-90 28
RAT/SPRAGUE-DAWLEY	WLEY		Study Start	Study Start Date: 10-Dec-86	SUBCH	HRONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: Day of death:	86D00594 148	E I	Gressacrifice 1	Group: 2 Terminal	Dose level: Terminal body weight (kms):	0.81	(MG/KG) /day
Date	Day/week of Study	Organ Name	<pre><< O r g a n W Absolute Organ Weight (gms)</pre>	e i g h t s >> Relative % of Body Weight	Relative & of Brain Weight	Organ))
05-May-87	147/21	LIVER	24.2	3.01	1170.0	107	
05-May-87	147/21	KIDNEY	4.5	0.56	217.8	High	
05-May-87	147/21	HEART	1.9	0.23	9,68	101	
05-May-87	147/21	BRAIN	2.1	0.26	100.0	3 0	
05-May-87	147/21	ADRENAL GLANDS		800.0	3.14	•	
05-May-87	147/21	TESTIS		0.446	173.12		
05-May-87	147/21	SPLEEN	1.0	0.12	48.5		
		9 >>	ross Obs	ervations >>			
Tissue	Finding, severity	lty	75	Gross Free-Text Comments			
WHOLE BODY	NO LESIONS RECOGNIZED	OGNIZED		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue		*	Necropsy	женоя >>			
No necropsy memos	mos recorded on animal	imal	6 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Tissue	<< Histopathologic diagnos	<pre><< P a t h c dlagnoses / Speci</pre>	o l o g y O al histological	bservations; comments	^		
SALIVARY GLAND	INFLAMMATION, CHRONIC,	CHRONIC, Mild, Mu	Mild, Multifocal,		!		
HEART	INFLAMMATION, CHRONIC,		Mild, Multifocal.				
SPLEEN	INCREASED BROWN PIGMENT		IN MACROPHAGES, Slight.				
KIDNEY	CORTICAL LYMPHC	OCYTE AGGREGATES,	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Multifocal.				
PANCREAS	INFLAMMATION, CHRONIC,		Moderate, Multifocal.				
TURBINATES	INFLAMMATION, LYMPHOCYTIC,		Slight, Multifocal.				

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO CA 94129	INSTITUTE OF , PATH SERV G	RESEARCI P	=		Individual An Study	Individual Animal Data Dump Table Study Number: 86005		PRINTED Page	PRINTED: 15-May-90 Page: 29
RAT/SPRAGUE-DAWLE	LE		·		Study Star	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00610 Day of death: 149	6D00610 49	Seatu	Sex: Male Status: Interim sacrifice 1	m sacr	\$ 7 8 8 8 8 8 8 8 8	Group: 2 Termir	Dose level: Terminal body weight (kms):	1.	(MG/KG)/day
Date	Day/week of Study		Organ Name	Š Š	Organ Weight (gms)	e i g h t s >> Relative % of Body Weight	Relative & of Brain Weight	Organ Status	
05-May-87 05-May-87 05-May-87	147/21 147/21 147/21		LIVER KIDNEY HEART	ı	17.6	3.41	804.2	High	
05-May-87 05-May-87	147/21		BRAIN ADRENAL GLANDS	LANDS	2.2	0.42	100.0	Low	
05-May-87 05-May-87	147/21	01	TESTIS		3.75	0.129	171.87	High	
Tissue	Finding, severity	everity	Ÿ	9	s q O s s o	servations >> Gross Free-Text Comments	ts		
WHOLE BODY	NO LESIONS RECOGNIZED	RECOGNI	ZED	: : : :		#			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	Necropsy memos	s o me		¥	Necropsy	жево х			
No necropsy memos recorded on animal	os recorded or	animal	1	1 1 1 1 1 1		· • • • • • • • • • • • • • • • • • • •			
Tissue	Histopatholog	logic di	<< P	athol /Special	ogy histologica	Observations Il comments	^		
KIDNEY	CORTICAL LYMPHOCYTE AGGREGATES, SI PROGRESSIVE RENAL DISEASE, Slight.	MPHOCYT RENAL	E AGGREGI DISEASE,	ATES, S	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Multifocal PROGRESSIVE RENAL DISEASE, Slight.				

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	INSTITUTE OF RES PATH SERV GP FRANCISCO, CA 9	SEARCH 94129	Individual Animal Data Dump Study Number: 86005	nal Data Dump Table Imber: 86005		PRINTED: 15-May-90 Page: 30
RAT/SPRAGUE-DAWLEY		1	Study Start	Study Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FEEDING
Animal: of death:	00653	Male Interim	sacrifice 1	Group: 2 Terminal	Dose level: Terminal body weight (kms):	1. (MG/K3)/day 0.68
Date D	Day/week of Study	y Organ Name	<pre><<</pre>	i g h t Relat Body	Relative & of Brain Weight	Organ Status
05-May-87	147/21	LIVER	23.9	3.52	1080.9	# i i i i i i i i i i i i i i i i i i i
05-May-87	147/21	KIDNEY	4.3	0.63	193.8	High
03-May-87	14//21	BEART.	1.7	0.25	76.5	Low
05-May-87	147/21	ADRENAL GLANDS		0.33	0.001	Low
05-May-87	147/21	TESTIS		0.547	168.22	
05-May-87	147/21	SPLEEN	1.2	0.18	55.1	
	Finding, severity	< <rr><<</rr>	Gross Obse Gr	ervations >> Gross Free-Text Comments		,
WHOLE BODY	NO LESIONS RECOGNIZED	COGNIZED				
Tissue	Necropsy memos		<< Necropsy	женов >>		
cropsy mem	s recorded on ar	ıimal	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Tissue	<< P		athology Ob. Special histological cor	bservations Comments	^	
SALIVARY GLAND	INFLAMMATION, CHRONIC,	,	Mild, Multifocal.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
PANCREAS	INFLAMMATION, CHRONIC,		Moderate, Multifocal.			
TURBINATES	INFLAMMATION,	LYMPHOCYTIC, SI	INFLAMMATION, LYMPHOCYTIC, Slight, Multifocal.			
CERVICAL LYMPH N	Miscellaneous. PLASMACYTOSIS,	Miscellaneous. PLASMACYTOSIS, MEDULLARY, Moderate	erate			
EXTRAOCULA MM	Miscellaneous. MYOPATHIC CHANGE,	GE, Slight.				

PATHOLOGY ANNEX B (cont.)

LETTERMAN ARMY INSTITUTE OF DIV OF RES SUPP, PATH SERV PRESIDIO OF SAN FRANCISCO,	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	F RESEARCH GP CA 94129	Individual Ani	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 31
RAT/SPRAGUE-DAWLEY	*LEY	1 1 1 1 1 1 1 1 1	Study Start	Start Date: 10-Dec-86	SUBCHI	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00693 Day of death: 149	00693	Sex: Male Status: Interim	sacrifice 1	Group: 2 Termina	Dose level: Terminal body weight (kms):	1. (MG/KG)/day 0.69
Date 	Day/week of Study	1y Organ Name	<pre><< Or gan W Absolute Organ Weight (gms)</pre>	e i g h t s >> Relative % of Body Weight	Relative & of Brain Weight	Organ
05-May-87	147/21	LIVER	18.1	2.61	876.3	Low
05-May-87	147/21	KIDNEY HFART	3.5	0.51	172.2	
05-May-87	147/21	BRAIN	2.1	62.0	4.20	Low
05-May-87	147/21	ADRENAL GLANDS	0	860-0	100.0	LOW
05-May-87	147/21	TESTIS		0.470	157.86	
/ a - Kad - c o	14//21	SPLEEN	8.0	0.12	39.8	
Tissue	Finding, severity	<< rity <<	Gross Obse	ervations >> Gross Free-Text Comments	ú	
WHOLE BODY	NO LESIONS RECOGNIZED	COGNIZED			4 f 8 8 8 1 1 2 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
Tissue	Necropsy memos	v	<< Necropsy	ж е в о о о о о о о о о о о о о о о о о о		
ropsy mem		nimal	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			; ; ; ; ; ; ; ; ;
Tissue	Histopathologic diagno	b s	athology Ob Special histological co	bservations comments	^	
SALIVARY GLAND	INFLAMMATION, CHRONIC,	l	Mild, Multifocal.	5		1
HEART	INFLAMMATION, CHRONIC,		Slight, Multifocal.			
SPLEEN	INCREASED BROWN PIGMEN	WN PIGMENT IN M	T IN MACROPHAGES, Mild.			
LIVER	INFLAMMATION, CHRONIC,		MULTIFOCAL, Slight, Multifocal	al.		
PANCREAS	INFLAMMATION, CHRONIC,		Slight, Multifocal.			
EYES & OPTIC N.	ONE EYE UNREADABLE DUE	ADABLE DUE TO MA	TO MANIPULATION ARTIFACT			

LETTERMAN ARMY INSTITUTE OF R. DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	А RCH 129	Individual An Study	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	: 15-May-90 : 32
RAT/SPRAGUE-DAWLEY	LEY		Study Sta.	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D0 Day of death: 149	00710	Sex: Male Status: Interim sacu	sacrifice 1	Group: 2	Dose level: Terminal body weight (kms):	1.0.74	(MG/KG)/day
•	of s	Organ Name	Organ Absolute Organ Weight (gms)	Weights >> Relative % of Body Weight	Relative & of Brain Weight	Organ Status	
05-May-87	147/21	LIVER	24.9	3.35	1187.7	LOW	
05-May-8/	147/21	KIONEY	3.9	0.53	187.5		
05-May-87	147/21	REAKI	2.7	0.26	92.4	Low	
05-May-87	147/21	AUKENAL GLANDS	0.08	0.28	100.0	Log	
05-May-87	147/21	TESTIS	3.42	0.461	163.35		
05-May-87	147/21	SPLEEN	1.0	0.13	47.6		
Tissue	Finding, severity	>>	s q O s s o J	ervation			
	י יוותווולו אפעבורול		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Gross Free-Text Comments			•
WHOLE BODY	NO LESIONS RECOGNIZED)GNI ZED			4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		1
Tissue	Necropsy	*	Necropsy	Memos >>			
No necropsy memos	os recorded on animal	.ma.					:
Tissue		b 'd	o l o g y O al histological	bservations ; comments	^		
	INFLAMMATION, CHRONIC,	HRONIC, Mild, Multifocal	tifocal.		:		1
SPLEEN	INCREASED BROWN PIGMENT		IN MACROPHAGES, Mild.				
LIVER	NECROSIS, ACUTE, Mild,	;, Mild, Multifocal.	1.				
KIDNEY	PROGRESSIVE REN	PROGRESSIVE RENAL DISEASE, Mild.					
PANCREAS	INFLAMMATION, CHRONIC,		Moderate, Multifocal.				
PREPUTIAL GLAND	Miscellaneous. INFLAMMATION, CHRONIC,	HRONIC, Slight.					

LETTERMAN ARM: DIV OF RES SUE PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	A RCH 129	Individual An Study 1	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	: 15-May-90 : 33
RAT/SPRAGUE-DAWLEY			Study Star	Start Date: 10-Dec~86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 860 Day of death: 149	00732 St	Male Interim	Gi Sacrifice 1	2	Dose level: Terminal body weight (kms):	 	1. (MG/KG)/day 0.70
Date	Day/week of Study	<pre>0rgan Name</pre>	Organ Absolute Organ Weight (gms)	e i g h t s >> Relative t of Body Weight	Relative & of Brain Weight	Organ Status	
 05-May-87	147/21	LIVER	0 80				
05-May-87	147/21	KIONEY	6.1.3	77.0	1113.3		
05-May-87	147/21	HEART	· -	0.66	86.98	High	
05-May-87	147/21	BRAIN	666	0.32	0.00	TOM.	
05-May-87	147/21	ADRENAL GLANDS	80.0	0.012	3 63	307	
05-May-87	147/21	TESTIS	3.65	0.520	163.89		
05-May-87	147/21	SPLEEN	1.1	0.15	47.4		
Tissue		<< G r .ty	s q Osso	ervations >> Gross Free-Text Comments			
SPLEEN	ENLARGED (SPLENC	ENLARGED (SPLENOMEGALY), Moderate	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1	
		¥	Necropsy	×			
No necropsy memos	mos recorded on animal	.mal	\		\$		1
Tissue	<pre></pre>	ath /Speci	o l o g y 0 al histological	servations omments	^		
GLAND		Focal.	1	;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;			
SALIVARY GLAND	INFLAMMATION, CHRONIC,	Slight,	Multifocal.				
HEART	INFLAMMATION, CHRONIC,	HRONIC, Slight, Multifocal	ltifocal.				
SPLEEN	INCREASED BROWN	INCREASED BROWN PIGMENT IN MACROPHAGES, Slight.	HAGES, Slight.				
LIVER	INFLAMMATION, CHRONIC, ARTERITIS, CHRONIC, M	HRONIC, MULTIFOCAL, NIC, Mild, Focal.	, Slight, Multifocal	cal.			
KIDNEY	CORTICAL LYMPHOCYTE AGGREGA PROGRESSIVE RENAL DISEASE,	CORTICAL LYMPHOCYTE AGGREGATES, Mild, Focal. PROGRESSIVE RENAL DISEASE, Slight, Multifoca	NTES, Mild, Focal. Slight, Multifocal.				

LETTERMAN ARMY INSTITUTE OF RIDIV OF RES SUPP, PATH SERV GR	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESTOID OF SAN FRANCISCO CA 94129	Individ	Individual Animal Data Dump Table Study Number: 86005	rable	_	PRINTED: 15-May-90 Page: 34	May-90
RAT/SPRAGUE-DAWLEY	Y		Study Start Date: 10-Dec-86	96	SUBCHRO	SUBCHRONIC/180 DAY FEEDING	FEEDING
Animal: 86000732 Day of death: 149	30732		Group: 2	Done level: Terminal body weig: (kms):	Does level:	1. (MG/KG)/day 0.70	G) /day
Tissue	Tissue Histopathologic diagno		Observat 1 gical comments	^^ s c o	1 1 1 1 1 1 1 1		! ! ! !
PANCREAS	INFLAMMATION, CHRONIC,	IIC, Slight, Multifocal.					

Miscellaneous. ARTERITIS, CHRONIC, Mild.

MESENTERY

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	INSTITUTE C P, PATH SERV N FRANCISCO,	OF RESEARC / GP . CA 94129	RCH 29		Individual Ani Study P	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	: 15-May-90 : 35
RAT/SPRAGUE-DAWLEY	WLEY	ļ	1	1 1 1 1 1	Study Start	Study Start Date: 10-Dec-86	SUBCH	HRONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: of death:	86D00534 149	Sta	Sex: Male Status: Interim	im sacrifice	1	Group: 3	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date	Day/week of Study	Study	_	Name	Organ Moight (qms)	e i g h t s >> Relative % of Body Weight	Relative \$ of Brain Weight	Organ Status	
05-May-87	147/21	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LIVER	<u>;</u>	26.2	7.84	1169 0	-	
05-May-87	147/21		KIDNEY		4.1	0.61	184.7	High	
05-May-87	147/21		HEART		1.9	0.28	84.2	TOM	
05-May-87	147/21		BRAIN		2.2	0.33	100.0	Low	
05-May-87	147/21		ADRENAL	IAL GLANDS	0.08	0.011	3,35		
05-May-87	147/21		TESTIS		2.50	0.367	111.79		
OD-May-60	17//61		SPLEEN		1.2	0.17	52.7		
i	i			4< G F	s q O s s o	ervations	^		
Tissue	Finding, severity	severit	٠.		9	Gross Free-Text Comments	ts		•
SKIN	ALOPECIA, Trace	, Trace			4	ICM ABRASION IS PRES	A ICM ABRASION IS PRESENT IN THE VENTRAL ABBOMINAL REGION	DOMINAL RE	GION.
TESTIS	ATROPHIC	/SMALL,	ATROPHIC/SMALL, UNILATERALLY, Moderate	LLY, Mod		THE LEFT TESTIS IS ABOUT HALF	THE SIZE OF	THE RIGHT TESTIS	ESTIS.
Tissue	Necropsy memos	memos	1	*	Necrops Y	жевов >>			
No necropsy memos		on anim	lal	 	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;		4 5 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Tissue		hologic	<< l> Histopathologic diagnoses	Path /Speci	logy 0 histological	bservations comments	^		
SALIVARY GLAND	INFLAMMATION, CHRONIC,	TION, CH		Mild, Multifocal	focal.		• • • • • • • • • • • • • • • • • • • •	1 1 1 1 1 1 1	
HEART	INFLAMMATION, CHRONIC,	TION, CH		Slight, Focal	cal.				
LIVER	INFLAMMATION, CHRONIC, NECROSIS, ACUTE, Slight	TION, CH		MULTIFOCAL, M t, Multifocal.	MULTIFOCAL, Mild, Multifocal , Multifocal.	1.			
KIDNEY	CORTICAL PROGRESS	LYMPHOC	CORTICAL LYMPHOCYTE AGGREGATES, ? PROGRESSIVE RENAL DISEASE, Mild,		Slight, Multifocal. Multifocal.				
TESTIS	DEGENERA1	TION, SE	MINIFEROUS	S EPITHEI	DEGENERATION, SEMINIFEROUS EPITHELIUM, Marked, Diffuse.	fuse.			

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	WSTITUTE OF REPAY THE SERVICE THE SERVICE THE SERVICE OF THE SERVICE OF 15 SERVICE OF		Individual Animal Data Dump Table Study Number: 86005	PRINTEn: 15-May-90 Page: 36
RAT/SPRAGUE-DAWLEY	SY	Study	Study Start Date: 10-Dec-86	SUBCHRONIC/180 DAY FEEDING
Animal: 86000534 Sex: Ma Day of death: 149 Status: In	10534	Sex: Male Status: Interim sacrifice 1	le Group: 3 Dose level: 10. (MG/KG)/day terim sacrifice 1 Terminal body weight (kms): 0.68	Dose level: 10. (MG/KG)/day
Tissue	Histopathologic	<< P a t h o l o g y O b s e r Histopathologic diagnoses / Special histological comments	Pathology Observations >> ses/Special histological comments	
SKIN	INFLAMMATION, CHRONIC,	HRONIC,	Moderate, Focal.	111111111111111111111111111111111111111
TURBINATES	INFLAMMATION,	INFLAMMATION, LYMPHOCYTIC, Slight, Multifocal.	. (

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Individual Animal Data Dump Table Study Number: 86005

LETTERMAN ARMY INSTITUTE OF RESEARCH	PRESIDIO OF SAN FRANCISCO CA CASO	RAT/SPRAGUE-DAWLEY	

Animal: Renonse	1	, , , , , , , , , , , , , , , , , , , ,	Study Start D.	Study Start Date: 10-Dec-86	SURCH	PONTY / 1 0/	
Day of death: 149	9550	Sex: Male		Groups 3	TNOWINGS	TAT / TROUT	COCCURONIC/ ISO DAY FEEDING
		status: Interim sacrifice 1	7		Dose level: Terminal body weight (kms);		10. (MG/KG)/day
Date 05-May-87 05-May-87 05-May-87 05-May-87 05-May-87 05-May-87	Day/week of Study 147/21 147/21 147/21 147/21 147/21 147/21	Ofgan Name LIVER KIDNEY HEART BRAIN ADRENAL GLAND: TESTIS SPLEEN	f g a n solute Organs) 25.3 25.3 3.9 2.0 1.8 0.08 3.85	^ = 6	Relative & of Brain Weight 1408.4 217.9 114.0 100.0 4.18 46.5	Orga Stat Stat Hig	82
Tissue	Finding, severity NO LESIONS RECOGNIZED	y << Gros	d C 8	Observations >> Gross Free-Text Comments		1	

<< Necropsy	No necropsy memos recorded on animal
Necropsy memos	recorded on animal
Tissue	 No necropsy memos

Histopathologic diagnoses / Special histological comments INFLAMMATION, CHRONIC, Mild, Multifocal	T, Slight.	PIGMENT IN MACROPHAGES MILL	TIM COOK
Histopathologic diagnoses / Special histological comments INFLAMMATION, CHRONIC, Mild, Multifocal	HYPERPLASIA, BALT, Slight.	INCREASED BROWN PIGMENT IN MACROPHAGES MILE	The second secon
Tissue	LUNGS	SPLEEN	

CORTICAL LYMPHOCYTE AGGREGATES, Slight, Multifocal.

KIDNEY

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	INSTITUTE OF R. PATH SERV GP FRANCISCO, CA	ESEARCH	Individual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	15-May-90 38
RAT/SPRAGUE-DAWLEY	EY		Study Start	Study Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FREDING	AY FEEDING
Animal: 86 Day of death: 14	86D00572 149	Sex: Male Status: Interim sa	Grou	Group: 3 Terminal	Dose level: Terminal body weight (kms):	10. (M	(MG/KG)/day
Date .	Dav/week of Studv	Ordan Name	Absolute Organ Welcht forms)	ights >> Relative % of	Relative & of	Organ	1 4 9 1 1 1 1
		1 1 1 1	(diii)	contractor	Brain Weignt	SCACUS	
05-May-87	147/21		23.3	3.95	1000.0	 	
05-May-87	147/21	KIDNEY	4.0	0.68	172.7	High	
05-May-87	147/21	HEART	1.7	0.29	73.8	•	
05-May-87	147/21	BRAIN	2.3	0.40	100.0	Low	
05-May-87	147/21	ADRENAL GLANDS	60.00 s	0.016	3.94	•	
05-May-87	147/21	TESTIS	3.53	0.599	151.44		
05-May-87	147/21	SPLEEN	0.8	0.13	33.9		
		9 >>	ross Obse	rvations >>			
Tissue	Finding, severity	verity		ss Free-Text Comme			
LIVER	ENLARGED, MILLA ABNORMAL PIGMENTATION,	ild GMENTATION, Mild	EDC CEN	EDGES WERE ALSO ROUNDED. CENTRAL PALLOR, MARKEDLY	ACCENTUATED ARCHITECTURE	SCTURE	
Tissue		>> som	Necropsy	Te Bos >>			
No necropsy memos	s recorded on animal	animal	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;			• • • • • • • • • • • • • • • • • • •	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	Histopatholo	<pre><< P a t ogic diagnoses / Spe</pre>	A thologic diagnoses / Special histological comments	vations	^		
SPLEEN	INCREASED BROWN	INCREASED BROWN PIGMENT IN MACROPHAGES, Slight.	OPHAGES, Slight.		* * * * * * * * * * * * * * * * * * *	; ; ; ; ; ;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
LIVER	INFLAMMATION, CHRONIC,		MULTIFOCAL, Slight, Multifocal.	1).			
KIDNEY	CORTICAL LYM PROGRESSIVE	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Mult PROGRESSIVE RENAL DISEASE, Mild, Multifocal	Slight, Multifocal. i, Multifocal.				
PANCREAS	INFLAMMATION, CHRONIC,		Slight, Multifocal.				
PITUITARY GLAND	CYST(S), PARS DISTALIS,		Slight, Multifocal.				

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	WSTITUTE OF RESEARC PATH SERV GP PRANCISCO, CA 94129	.29	Individual A Study	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	: 15-May-90 : 39
RAT/SPRAGUE-DAWLEY			Study Sta	Study Start Date: 10-Dec-86	SUBCH	IRONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00603 Day of death: 149	00603	Sex: Male Status: Interim sacri	sacrifice 1	Group: 3 Terminal	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
	Day/week of Study	t	. <u> </u>	Weights >> Relative & of Body Weight	Relative & of Brain Weight	Organ Status	1 1 1 1 1 1 1 1 1
05-May-87 05-Hav-87	147/21	LIVER	19.4	3.02	937.9	Low	
05-May-87	147/21	HEART	1.6	0.25	9.77	Low	
05-May-87	147/21	BRAIN ADDENAT CLANDS	2.1	0.32	100.0	Low	
05-May-87	147/21	TESTIS	3.17	0.495	153.66		
05-May-87	147/21	SPLEEN	6.0	0.14	42.9		
Tissue	Finding, severity	< G r ty	d 0	Gross Free-Text Comments			٠
WHOLE BODY	NO LESIONS RECOGNIZED	GNIZED					
Tissue	Necropsy memos	>	Necrops y	He B Os >>			
No necropsy memos	recorded on animal	mal	 		• • • • • • • • • • • • • • • • • • •		
Tissue	Histopathologic	<< P a t h o l o g y O Histopathologic diagnoses / Special histological	o l o g y O al histological	bservations comments	^		
IVARY GLAND	INFLAMMATION, CHRONIC,	HRONIC, Slight, Multifocal	ltifocal.				
неакт	INFLAMMATION, CHRONIC,	HRONIC, Slight, Multifocal	ltifocal.				
LUNGS	ALVEOLAR HISTIOCYTOSIS,	CYTOSIS, Mild, Focal	al.				
LIVER	INFLAMMATION, CHRONIC, MU NECROSIS, ACUTE, Slight, THROMBOSIS, PORTAL VEIN,	HRONIC, MULTIFOCAL, Sli , Slight, Multifocal. FAL VEIN, Slight, Focal	MULTIFOCAL, Slight, Multifocal. , Multifocal. , Slight, Focal.	focal.			
KIDNEY	CORTICAL LYMPHOCYTE AGG PROGRESSIVE RENAL DISEA	REG.	VTES, Mild, Multifocal. Slight, Multifocal.				

LETTERMAN ARMY INSTITUTE OF RE DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	Individual Anima Study Num	Individual Animal Data Dump Table Study Number: 86005	PRINTE Pac	PRINTED: 15-May-90 Page: 40
RAT/SPRAGUE-DAMLEY	EY	Study Start D	Study Start Date: 10-Dec-86	SUBCHRONIC/16	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00603 Day of death: 149	000603 Sex: Male 9 Status: Inte	Sex: Male Status: Interim sacrifice 1	Animal: 86D00603 Sex: Male Group: 3 Day of death: 149 Status: Interim sacrifice 1 Group: 3 Terminal body weight (kms): 0.64	Dose level: 10. (MG/KG)/day	(MG/KG)/day
Tissue	Histopathologic diagnos	4 Pathologic diagnoses / Special histological comments	<pre>tissue Histopathologic diagnoses / Special histological comments</pre>	! ! ! ! ! ! ! !	
EXTRAOCULAR MM	Miscellaneous.	44			t

LETTERMAN ARMY DIV OF RES SUPI PRESIDIO OF SAN	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	SSEARCH 94129	Individual	Individual Animal Data Dump Table Study Number: 86005		PRIN	PRINTED: 15-May-90 Page: 41
RAT/SPRAGUE-DAWLEY	ALEY.		Study St	Start Date: 10-Dec-86		SUBCHRONIC/180	
Animal: 86D00613 Day of death: 149		Sex: Male Status: Interim	m sacrifice 1	Group: 3 Terminal	Dose Terminal body weight	level: 10. (kms): 0.63). (MG/KG)/day
Date	jo	Organ	<pre><< Or g a n Absolute Organ Weight (gms)</pre>	n Weig n Re	Relative & of Brain Weight	Organ	1
05-May-87 05-May-87		LIVER	21.9	3.47	1016.1		
05-May-87	147/21	HEART) L (0.23	66.7	Low	
05-May-87	147/21	BRAIN ADRENAL GLANDS		0.34	100.0	Lo	
05-May-87 05-May-87	147/21	TESTIS SPLEEN	3.03	0.479	140.54		
Tissue	Finding, severity	<< erity	Gross Ob	servations >> Gross Free-Text Comments			
WHOLE BODY	NO LESIONS RECOGNIZED	S RECOGNIZED			; 1		
Tissue		Я	<< Necrops	у жемов >>			
No necropsy mem	No necropsy memos recorded on animal	animal	# 1 1 2 2 5 5 E B B B B B B B B B B B B B B B B B		! ! ! ! !	† : : : : : : : : : : : : : : : : : : :	
Tissue		<pre>/< P Histopathologic diagnoses /</pre>	athology O / Special histological	bservations comments	^		
SALIVARY GLAND	INFLAMMATION, CHRONIC,	1	Mild, Multifocal.				
HEART	INFLAMMATION, CHRONIC,		Mild, Focal.				
LIVER	INFLAMMATION, CHRONIC, ARTERITIS, CHRONIC, MI	~	MULTIFOCAL, Mild, Multifocal d, Focal.	ocal.			
KIDNEY	CORTICAL LYMI PROGRESSIVE F	PHOCYTE AGGREGAN	CORTICAL LYMPHOCYTE AGGREGATES, Mild, Multifocal PROGRESSIVE RENAL DISEASE, Mild, Multifocal.	-			
PANCREAS	INFLAMMATION, CHRONIC,	-	Moderate, Multifocal.				
CERVICAL LYMPH N	N Miscellaneous. PLASMACYTOSIS, MEDULLARN	s. S, MEDULLARY, Mild.	ild.				

DIV OF RES SUF	DIV OF RES SUPP, PATH SERV GP			Individual Ani Study N	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	PRINTED: 15-May-90 Page: 42
- S	ANCISCO, C	94129		Study Start	Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: Day of death:	86000638 149	Sex: Male Status: Interim	•	Gr Sacrifice 1	Group: 3	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date	Day/week of St	! -		Organ Welght (gms)	e i g h t s >> Relative % of Body Weight	Relative & of Brain Weight	Organ Status	
 05-May-87	147/21	LIVER	!!!!	23.0	3.47	1091.3	!	
05-May-87	147/21	KIDNEY		4.1	0.61	192.7	High	
05-May-87	147/21	HEART		1.7	0.26	82.8	Low	
05-May-87	147/21	BRAIN		2.1	0.32	100.0	Low	
05-May-87	147/21	ADRENAL GLANDS	CLANDS	0.03	0.005	1.56	Low	
05-May-8/ 05-May-87	147/21	TESTIS		3.84	0.5/9	182.12		
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	20,700		, 6 r	sq0 sso	ervations >	^^		
Tissue	Finding, severity	everity		1 C	Gross Free-Text Comments	C	1	. !
WHOLE BODY	NO LESIONS	RECOGNI ZED						
			Ÿ	Necropsy	Memos >>			
Tissue	Necropsy memos	mos	1					
ADRENAL GLANDS	:	ONE ADRENAL GLAND MISSING						
Tissue		<< ogic diagnoses	Path s/Speci	ology O ial histological	bservations comments	^		
SALIVARY GLAND	 	INFLAMMATION, CHRONIC, SI	ight, M	Slight, Multifocal.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		; ; ; ; ; ; ; ;	1 1 1 1 1 1 1 1 1 1 1
SPLEEN	INCREASED B	INCREASED BROWN PIGMENT I	IN MACRO	T IN MACROPHAGES, Slight.				
LIVER	INFLAMMATIO	INFLAMMATION, CHRONIC, MI	JLTIFOCA	MULTIFOCAL, Slight, Multifocal	cal.			
KIONEY	CORTICAL LY PROGRESSIVE	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Foc PROGRESSIVE RENAL DISEASE, Mild, Multifocal	GREGATES, :	Slight, Focal. Multifocal.				
PANCREAS	INFLAMMATIO	INFLAMMATION, CHRONIC, M	Mild, Multifocal	tifocal.				
EXTRAOCULAR MM		Miscellaneous. MYOPATHIC CHANGE, Slight.						

LETTERMAN ARMY DIV OF RES SUP PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	ARCH 129	Individual Animal Data Dump Study Number: 86005	ual Animal Data Dump Table Study Number: 86005		PRINTED: 15-1 Page: 43	15-May-90 43
RAT/SPRAGUE-DAWLEY	WLEY		Study Start	Study Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FEEDING	FEEDING
Animal: 86D	00658	Sex: Male Status: Interim sacr	sacrifice 1	Group: 3 Termina	Dose level: Terminal body weight (kms):	10. (MG/KC 0.60	(MG/KG)/day
Date	Day/week of Study	<<	Organ Weight (9ms)	e i g h t s >> Relative % of Body Weight	Relative % of Brain Weight	Organ Status]
05-May-87	147/21	LIVER	19.5	3.25	1046.9	30,	
05-May-87	147/21	KIDNEY	3.6	0.59	190.5	High	
05-May-87	147/21	HEART	1.4	0.23	75.5	10.1	
05-May-87	147/21	BRAIN	1.9	0.31	0 001	101	
05-May-87	147/41	ADRENAL GLANDS	0.07	0.012	3, 75		
05-May-87	147/21	TESTIS	3.14	0.522	168 45		
05-May-87	147/21	SPLEEN	0.8	0.14	45.3		
Tissue	Finding, severity	< <p>4 6 r</p>	s q O s s o	er/ations >> Gross?ree-Text Comments	ø		
WHOLE BODY	NO LESIONS RECOGNIZED	GNIZED			1		
Tissue	Necropsy memos	*	Necropsy	Menos >>			
No necropsy memos	nos recorded on animal	ma l	4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		* [[]] !
Tissue	<pre></pre>	<< Patho diagnoses / Special	l o g y O histological	bservations comments	^		
SALIVARY GLAND	INFLAMMATION, CI	INFLAMMATION, CHRONIC, Mild, Multifocal	ifocal.	,		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-
LACRIMAL GLAND	INFLAMMATION, CHRONIC,	HRONIC, Slight, Multifocal.	ltifocal.				
LIVER	INFLAMMATION, CHRONIC	HRONIC, MULTIFOCAL, Slight,	, Slight, Multifocal	al.			
KIDNEY	CORTICAL LYMPHOOP PROGRESSIVE REN	CORTICAL LYMPHOCYTE AGGREGATES, Mild, Focal. PROGRESSIVE RENAL DISEASE, Slight, Multifocal	ild, Focal. , Multifocal.				
PANCREAS	INFLAMMATION, CHRONIC,	HRONIC, Mild, Multifocal	ifocal.				
COLON	GRANULOMA(S), SUBMUCOSA,	JBMUCOSA, Slight, Focal.	Focal.				

DIV OF RES SUPP, PATH PRESIDIO OF SAN FRANCI: RAT/SPRAGUE-DAWLEY Animal: 86000658	TE OF RESEARCH SERV GP SCO, CA 94129 Sex: Male	Individual Animal Data Dump Table PRINTED: 15-May-90 Study Number: 86005 Study Start Date: 10-Dec-86 SUBCHRONIC/180 DAY FEEDING Group: 3 Dose level: 10. (MG/KG)/day	ump Table 05 Dec-86	SUBCHRO	PRINTEL Page NIC/18C	PRINTED: 15-May-90 Page: 44 SUBCHRONIC/180 DAY FEEDING
1	Day of death: 149 Status: Interim sacrifice	1	Terminal body weight (kms):	ıt (kms):	09.0	. :
stop	<< Pathologic diagnoses / Special histological comments		tions >>			
scell FLAMP	Miscellaneous. INFLAMMATION, GRANULOMATOUS, Mild, Focal.	OMATOUS, Mild, Focal.			 	

EXTRACCULAR MM Miscellaneous.
MYOPATHIC CHANGE, Slight.

LETTERMAN ARM DIV OF RES SUI PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	SARCH 1129	Individual Animal Data Dump Study Number: 86005	al Data Dump Table mber: 86005		PRINTED: 15-May-90 Page: 45	15-May-90 45
RAT/SPRAGUE-DAWLEY	AWLEY		Study Start	Study Start Date: 10-Dec-86	SUBC	SUBCHRONIC/180 DAY FEEDING	AY FEEDING
Animal: 86D0 Day of death: 149	30662	Male Interim	Gro Sacrifice 1	Group: 3	Dose level Terminal body weight (kms)	10. (M	(MG/KG)/day
Date	Day/week of Study	Organ	Organ We Absolute Organ Weight (gms)	ights >> Relative % of Body Weight	Relative & of Brain Weight	Organ Status	1 1 1 1 1 1 1
	147/21	110000		1 1 1 1 1 1 1 1 1 1 1			
05-May 87	147/21	KIDNEY	19.9 د د	7.69	962.6	Low	
05-May-87	147/21	HEART	1.7	0.03	c	-	
05-May-87	147/21	BRAIN	2.1	0.28	0.001	3 10 1	
05-May-87	147/21	ADRENAL GLANDS	0.07	0.010	3.43	.	
05-May-87	147/21	TESTIS	3.50	0.473	169.44		
05-May-87	147/21	SPLEEN	6.0	0.12	42.1		
Tissue	Finding, severity	1 9 ×>	oss Obse	ervations >>			
	10000 16000000			ייייייייייייייייייייייייייייייייייייייי	11 11 11 11 11 11 11 11 11 11 11 11 11	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
WHOLE BODY	NO LESIONS RECOGNIZED	OGNIZED					
Tissue	Necropsy memos	*	Necropsy	Mesos >>			
No necropsy me	Ŋ	ı			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	Karathologic diagnoses (see page 1)		athology Obs Special histological com	bservations; comments	^		
HEART	INFLAMMATION, CHRONIC,	CHRONIC, Mild, Multifocal	focal.	1			
LUNGS	HYPERPLASIA, BALT, Slight.	ALT, Slight.					
SPLEEN	INCREASED BROWN PIGMENT		IN MACROPHAGES, MIld.				
LIVER	INFLAMMATION, CHRONIC,	CHRONIC, MULTIFOCAL,	, Slight, Multifocal	1.			
KIDNEY	PROGRESSIVE REI	PROGRESSIVE RENAL DISEASE, Slight,	, Multifocal.				

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	C INSTITUTE OF PP, PATH SERV NN FRANCISCO.	RESEARCE GP CA 94129	RСН 29		Individual Ani Study A	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:): 15-May-90 e: 46
RAT/SPRAGUE-DAWLEY	GUE-DAWLEY				Study Start	Start Date: 10-Dec-86	SUB	CHRONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: Day of death:	Animal: 86D00671 death: 149	Sta	Sex: Male Status: Interim sacrifice	rim sac	7	3	Dose level: Terminal body weight (kms):	1; 10.	(MG/KG)/day
Date	Day/week of	Study	Organ Name		<pre><< 0 r g a n W Absolute Organ Weight (gms)</pre>	e i g h t s >> Relative % of Body Weight	Relative & of Brain Weight	Organ	
05-May-87 05-May-87	147/21	1	LIVER	<u> </u>	23.2	3.27	1150.7	Low	
05-May-87	147/21		HEART		1.7	0.25	175.4	LOW	
05-May-87	147/21		BRAIN ADRENAL	GLANDS	2.0	0.28	100.0	Low	
05-May-87 05-May-87	147/21 147/21		TESTIS			0.520 0.18	183.13 64.5		
Tissue	Finding, severity	severil		9 >>	ross Obs G	ervations >> Gross Free-Text Comments			
WHOLE BODY	NO LESIONS RECOGNIZED	S RECO	SNIZED				; ; ; ; ; ; ; ; ; ;	 	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	Necropsy	ж ето s		¥	Necropsy	Σ 0 0 0 0 0 0 0			
No necropsy memos recorded on animal	mos recorded	on anir	nal	; ; ; ;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-	
Tissue		ologic	<< diagnose:	` \	o l o g y 0 al histological	servations omments	^		
SALIVARY GLAND	INFLAMMATION, CHRONIC, S	ION, C	HONIC, S.	light, N	Multifocal.				
HEART	INFLAMMATION, CHRONIC, Slight, CHRONIC MYOFIBER DEGENERATION,	ION, CE YOFIBER	RONIC, S		Multifocal. Slight, Multifocal.				
LUNGS	GRANULOMA(S), Slight, Fo	(s), s1	1ght, Foo	cal.					
LIVER	INFLAMMAT	ION, CH	RONIC, MI	LTIFOCA	INFLAMMATION, CHRONIC, MULTIFOCAL, Slight, Multifocal	cal.			
KIDNEY	CORTICAL LYMPHOCYTE AGGREGATES, PROGRESSIVE RENAL DISEASE, Sligh	LYMPHOC VE RENA	YTE AGGRE	cares, i, sligh	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Focal. PROGRESSIVE RENAL DISEASE, Slight, Multifocal.				
COLON	GRANULOMA(S), SUBMUCOSA,	ns '(s)	BMUCOSA,	Mild, M	Mild, Multifocal.				

PATHOLOGY ANNEX B (cont.)

PRINTED: 15-May-90 Page: 47 SUBCHRONIC/180 DAY FEEDING	Dose level: 10. (MG/KG)/day ight (kms): 0.71	
Individual Animal Data Dump Table Study Number: 86005 Study Start Date: 10-Dec-86	e Group: 3 Dose level: 10. (MG/KG)/day erim sacrifice 1 Terminal body weight (kms): 0.71	Pathology Observations >> les / Special histological comments LER DEGENERATION, CHRONIC, Mild, Multifocal.
LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	1	C P a t h o l o g y O b s e r v a t i o l o g y O b s e r v a t i o l o g y O b s e r v a t i o l o g y O b s e r v a t i o l o g y O b s e r v a t i o l o g y O b s e r v a t i o l o g y O b s e r v a t i o l o g y O b s e r v a t i o l o g y O b s e r v a t i o l o g y O b s e r v a t i o l o g y O b s e r v a t i o l o g y O b s e r v a t i o g y O b s e r v

CERVICAL LYMPH N Miscellaneous. PLASMACYTOSIS, MEDULLARY, Mild.

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	INSTITUTE OF P. PATH SERV (RESEARCH GP CA 94129	Indivi	idual Anima Study Num	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	PRINTED: 15-May-90 Page: 48
RAT/SPRAGUE-DAWLEY	WLEY		Stu	Study Start D	Start Date: 10-Dec-86	SUBCH	HRONIC/180	SUBCHRONIC/180 DAY FEEDING
t h:	86D00701 149	Sex: Male Status: Interin	Male Interim sacrifice 1	Group:	3	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date '	Day/week of S	Study Organ Name	<pre></pre>	an We Organ (gms)	ights >> Relative % of Body Weight	Relative & of Brain Weight	Organ Status	
05-May-87	147/21	00212.2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		\$ 4 9 1 1 5 6 9 5 9		1 1 1 1 1	
10 Kg 1 50	12//17	LIVER	ڊ ر	23.5	3.31	1105.7	Low	
10-XBH-CO	14//21	KIDNEY		3.5	0.49	164.1		
181 VAE - 00	17//51	HEAKT			0.26	85.7	Low	
10. W. 30	17//61	BKAIN		2.1	0.30	100.0	Low	
18-MAY-80	14//21	ADRENAL GLANDS		0.05	0.007	2.31	Low	
05-May-80	141/21	TESTIS	m '	3.74	0.528	176.06		
05-May-8/	14//51	SPLEEN	0	0.8	0.11	36.5		
Tissue	Finding, severity	<< severity	Gross	Obser Gross	rvations >> ss Free-Text Comments			
WHOLE BODY	NO LESIONS RECOGN	NO LESIONS RECOGNIZED		1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
Tissue	Necropsy memos		< N e C F O	S. C.	жевов >>			
ro		on animal		 		• • • • • • • • • • • • • • • • • • •	: : : : : : : : : : : : : : : : : : : :	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	Histopatho	<< P << P <	athology C Special histological	Obser Odical	vations	^		
THYROID GLAND	CYST(S), M	CYST(S), Mild, Multifocal.						
SALIVARY GLAND	INFLAMMATI	INFLAMMATION, CHRONIC, MILD	Mild, Multifocal.					
LIVER	INFLAMMATI	INFLAMMATION, CHRONIC, MULT	MULTIFOCAL, Slight, Multifocal.	Multifocal				
KIDNEY	CORTICAL L	CORTICAL LYMPHOCYTE AGGREGATES,	TES, Slight, Multifocal	ltifocal.				
EPIDIDYMUS	MICROCYSTI	MICROCYSTIC CHANGE, EPITHELIUM, MILD	IUM, Mild.					
TESTIS	DEGENERATION	DEGENERATION, SEMINIFEROUS EPITHELIUM, Slight.	EPITHELIUM, Slig	ght.				
PANCREAS	INFLAMMATIO	INFLAMMATION, CHRONIC, MILD,	Mild, Focal.					

LETTERMAN ARMY DIV OF RES SUPE PRESIDIO OF SAN	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	ARCH 129	Individual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 49	90-ye
RAT/SPRAGUE-DAWLEY	VLEY		Study Start	Study Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FEEDING	EEDING
Animal: 86D00516 Day of death: 147	00516	Sex: Male Status: Interim sacrifice	-	Group: 7 Terminal	Dose level: al body weight (kms):	10. (MG/KG)/day 0.57) /day
Date	Day/week of Study	_	Organ We Absolute Organ Weight (gms)	ights >> Relative % of Body Weight	Relative % of Brain Weight	Organ Status	
 05-Mav-87	147/21	LIVER	9 91	70 6			
05-May-87	147/21	KIDNEY	3.3	0.58	1643.0	LOW	
05-May-87	147/21	HEART	1.7	0.30	95.0	116.111	
05-May-87	147/21	BRAIN	2.0	0.35	100.0	Town	
05-May-87	147/21	ADRENAL GLANDS	90.0	0.011	3.00	;	
05-May-87	147/21	TESTIS	3.49	0.612	174.50		
05 -May-8/	147/21	SPLEEN	8.0	0.14	40.0		
Tissue	Finding, severity	3 5 >>	oss Obse Gri	ervations >> Gross Free-Text Comments	د د		•
WHOLE BODY	NO LESIONS RECOGNIZED	OGNIZED		; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
Tissue	Necropsy memos	*	Y s c r o p s Y	ж е в о s >>			
No necropsy mem	S	mal	1	"	111111111111111111111111111111111111111		
Tissue	<pre></pre>	ᇫ `	athology Obs Special histological con	bservations comments	^		
SALIVARY GLAND	INFLAMMATION, CHRONIC,	HRONIC, Slight, Multifocal.	ltifocal.			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
SPLEEN	INCREASED BROWN	INCREASED BROWN PIGMENT IN MACROPHAGES, Mild, Multifocal	HAGES, Mild, Multii	[ocal.			
KIDNEY	CORTICAL LYMPHO	CORTICAL LYMPHOCYTE AGGREGATÉS, Slight, Multifocal	light, Multifocal.				
PANCREAS	INFLAMMATION, CHRONIC,	HRONIC, Slight, Multifocal.	ltifocal.				
PITUITARY GLAND	Required protocol tissue	ol tissue is missing.	ъд.				

PATHOLOGY ANNEX B (cont.)

CERVICAL LYMPH N Miscellaneous. PLASMACYTOSIS, MEDULLARY, Slight.

LETTERMAN ARMY INSTITUTE OF REDIV OF RES SUPP, PATH SERV GP PRESIDED OF SAN FRANCISCO CA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO CA 94129	T	Individual Animal Data Dump Table Study Number: 86005		PRINTED Page	PRINTED: 15-May-90 Page: 50
RAT/SPRAGUE-DAWLEY	RAT-SPRAGUE-DAWLEY		Study Start Date: 10-Dec-86	SUBCHRO	NIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00516 Day of death: 147	Animal: 86D00516 Sex: Ma Day of death: 147 Status: In		e Group: 7 Terminal body weight (kms): 0.57	Dose level: Terminal body weight (kms):	10.	10. (MG/KG)/day 0.57
Tissue	// Histopathologic diagno	C P a t h o l o g y O b s e r Histopathologic diagnoses / Special histological comments	Pathology Observations >> ses/Special histological comments	*	 	1 1 1 1 1 1 1 1 1 1
EXTRAOCULAR MM	Miscellaneous. MYOPATHIC CHANGE, Sligh	, S11ght.	ht.		; ! ! !	* 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

LETTERMAN ARMY DIV OF RES SUPI PRESIDIO OF SAI	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	RESEARCH P A 94129	Individual Al Study	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	: 15-May-90 : 51
RAT/SPRAGUE-DAWLEY	WLEY		Study Sta	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D0 Day of death: 147	86D00535 147	Sex: Male Status: Interim	sacrifice 1	Group: 7 Terminal body	Dose level: body weight (kms):	10.	(MG/KG)/day
Date	Day/week of St	Study Organ Name	<pre></pre>	Weights >> Relative tof Body Weight	Relative & of Brain Weight	Organ Status	f
05-Mav-87	147/21	LIVER	200		0 100		
05-May 87	147/21	KIDEEV	9.07	3.12	0.106	P C	
05-May-87	147/21	HEART	5.5	, c. c.	1.651	High	
05-May-87	147/21	BRAIN	2.1	0.32	0.001	3	
05-May-87	147/21	ADRENAL GLANDS	J	0.011) (F) (F) (F) (F) (F) (F) (F) (F) (F) (F		
05-May-87	147/21	TESTIS		0.523	164.29		
05-May-87	147/21	SPLEEN	1.0	0.15	47.6		
		*	Gross Obs	servations >>			
Tissue	Finding, severity	everity		Gross Free-Text Comments			
WHOLE BODY	NO LESIONS	NO LESIONS RECOGNIZED	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	 	
		smos.	<< Necropsy	жево \$ >>			
No necropsy memos	nos recorded on animal	n animal	/ P P P B B B B B B B B B B B B B B B B		!	 	f 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue		a \	athology 0 Special histological	bservations >> comments	^		
SALIVARY GLAND	1	INFLAMMATION, CHRONIC, Mild,	Mild, Multifocal.	, , , , , , , , , , , , , , , , , , ,			f 1 1 1 1 1 1 1 1 1
HEART	INFLAMMATIC	INFLAMMATION, CHRONIC, Sligh	Slight, Focal.				
LIVER	NECROSIS, A	NECROSIS, ACUTE, Mild, Multi	Multifocal.				
PANCREAS	INFLAMMATIC	INFLAMMATION, CHRONIC, MIld.					
SOLEUS MUSCLE	INFLAMMATIO	INFLAMMATION, CHRONIC, Mild.					
PREPUTIAL GLAND	_	Miscellaneous. INFLAMMATION, CHRONIC, Mild.					

LETTERMAN ARM: DIV OF RES SUI PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	,RCH 29	Individual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	PRINTED: 15-May-90 Page: 52
RAT/SPRAGUE-DAMI EY	AW. EY		Study Start	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D0 Day of death: 147	00560	Sex: Male Status: Interim sacrifice	1	Group: 7 Termina	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date	Day/week of Study	Organ Name	Organ We Absolute Organ Weight (gms)	ights >> Relative & of Body Weight	Relative % of Brain Weight	Organ Status	
05-May-87 05-May-87	147/21	LIVER	25.1	3.35	1255.0	Low High	
05-May-87 05-May-87 05-May-87 05-May-87	147/21 147/21 147/21 143/21	HEART BRAIN ADRENAL GLANDS	1.9 2.0 0.04	0.25 0.27 0.005	95.0 100.0 2.00	Low Low	
05-May-87	147/21	SPLEEN	3.32 1.3	0.443	166.00 65.0		
Tissue	Finding, severity	9 >>	oss Obse Gro	ervations>> Gross Free-Text Comments	Ŋ		
WHCLE BODY	NO LESIONS RECOGNIZED	GNIZED	1) 1 1 2 1	
Tissue	Necropsy memos	*	Necropsy	жево s >>			
No necropsy me	s recorded	nal	1			1 1 1 1 1 1	
Tissue	Histopathologic	<pre><< p a t h o l diagnoses / Special h</pre>	ogy Ob Hstological co	servations mments	^		
LIVER	INFLAMMATION, CHRONIC,	1	MULTIFOCAL, Slight, Multifocal	1.			
KIDNEY	CORTICAL LYMPHOX PROGRESSIVE RENA	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Multifocal PROGRESSIVE RENAL DISEASE, Slight, Multifocal.	light, Multifocal. Multifocal.				
PANCREAS	INFLAMMATION, CHRONIC,	HRONIC, Moderate, Multifocal.	fultifocal.				
ADRENAL GLANDS		Required protocol tissue is missing.	.9.				

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	NSTITUTE OF RE PATH SERV GP FRANCISCO, CA	SEARCH 94129	Individual Ani Study N	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	15-May-90 53
RAT/SPRAGUE-DAWLEY	EY		Study Start	Study Start Date: 10-Dec-86	SUBCHI	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00569 Day of death: 147		Sex: Male Status: Interim	Gr Sacrifice 1	Group: 7 Termin	Dose level: Terminal body weight (kms):	10. ((MG/KG)/day
Date	Day/week of Study	Organ	rgan ms)	e i g h t s >> Relative % of Body Weight	Relative % of Brain Weight	Organ Status	! ! ! ! ! ! ! !
05-May-87 05-May-87	147/21	LIVER	21.7	4.09	986.4	H1gh	
05-May-87	147/21	HEAKT BRAIN	1.4	0.26	63.6	Low	
05-May-87 05-May-87	147/21	ADRENAL GLANDS TESTIS	o m	0.006	1.36 139.09	Low	
Tissue	Finding, severity	Srbben << erity	Cross Obse	U.1/ ervations >> Gross Free-Text Comments	v. 04		
WHOLE BODY	NO LESIONS RECOGNIZED	ECOGNIZED		, , , , , , , , , , , , , , , , , , ,	1		
	Necropsy memos	s 0	<< Necropsy	Σ e ∃ o s >>			
No necropsy memos recorded on animal	s recorded on	animal	• • • • • • • • • • • • • • • • • • •	; ; ; ; ; ; ; ; ; ; ;	#	•	1 1 1 1 1
Tissue	<< Histopathologic diagno	P ses /	athology Ob Special histological co	bservations comments	^		
GLAND	CYST(S), Slight, Multi	ght, Multifocal.	. 		1		
SALIVARY GLAND	INFLAMMATION, CHRONIC,		Mild, Multifocal.				
LACRIMAL GLAND	INFLAMMATION, CHRONIC,		Slight, Multifocal.				
HEART	INFLAMMATION, CHRONIC,		Mild, Multifocal.				
THYMUS	Required prot	Required protocol tissue is missing.	missing.				
SPLEEN	INCREASED BRO	OWN PIGMENT IN M	INCREASED BROWN PIGMENT IN MACROPHAGES, Mild.				
KIDNEY	CORTICAL LYMP	HOCYTE AGGREGAT	CORTICAL LYMPHOCYTE AGGREGATES, Mild, Multifocal.				

LETTERMAN ARMY INSTITUTE OF RI DIV OF RES SUPP, PATH SERV GP	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SENV GP	Individual Animal Data Dump Table Study Number: 86005	p Table	PRINTEI Pag	PRINTED: 15-May-90 Page: 54
PRESIDIO OF SAN FR RAT/SPRAGUE-DAWLEY	PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	Study Start Date: 10-Dec-86		SUBCHRONIC/180 DAY FEEDING	DAY FEEDING
Animal: 8600569 Day of death: 147	00569 Seatus: I	Group: 7	Dose level: Terminal body weight (kms):		10. (MG/KG)/day 0.53
Tissue	Histopathologic diagr	4 Pathologic diagnoses / Special histological comments	at 10 ns >>		
KIDNEY	INFARCT, Mild, Focal.				
URINARY BLADDER	Required protocol tissue is	sue is missing.			
TESTIS	DEGENERATION, SEMINIFEROUS EPITHELIUM, Mild, Multifocal.	PITHELIUM, Mild, Multifocal.			
BONE, FEMUR	Required protocol tissue is	sue is missing.			
CERVICAL LYMPH N Miscellaneous.	Miscellaneous. PLASMACYTOSIS, MEDULLARY, Moderate.	derate.			

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	INSTITUTE OF P. PATH SERV N FRANCISCO.	RESEAR GP CA 9412	CH 9		Individual An Study	Individual Animal Data Dump Table Study Number: 86005		PRINT	PRINTED: 15-May-90 Page: 55
RAT/SPRAGUE-DAWLEY	WLEY				Study Star	Study Start Date: 10-Dec-86		SUBCHRONIC/1	SUBCHRONIC/180 DAY FEEDING
Animal: 86000597 Day of death: 147	86D00597 147	Stat	Sex: Male Status: Interim sacrifice 1	im sacr		Group: 7	Dose level: Terminal body weight (kms):	level: 10. (kms): 0.59	. (MG/KG)/day
Date	Day/week of Study	Study	Organ Name	*	Organ Absolute Organ Weight (gms)	e i g h t s >> Relative % of Body Weight	Relative % of Brain Weight	Organ	1
05-May-87	147/21	1 1 1 1	LIVER	;	18.3	3.10	7 705	1 30 1	
05-May-87	147/21		KIDNEY		3.9	99.0	169.6	High	
05-May-8/	147/21		HEART		1.9	0.32	82.6		
05-May-8/	147/21		BRAIN		2.3	0.39	100.0	Low	
05-May-87	147/21		ADRENAL GLANDS	STANDS	0.08	0.014	3.48		
05-May-87	147/21		TESTIS		3.69	0.625	160.43		
•						0.12	30.4		
Tissue	Finding. severity	, Tayor	Ÿ	1 5 2	s q O s s o	servations	^		
	· · · · · · · · · · · · · · · · · · ·			1 1	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Gross Free-Text Comments	DC 58		•
WHOLE BODY	NO LESIONS RECOGNIZED	S RECOGI	NIZED				. +	;	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	Necropsy memos	петов		Ÿ	Necropsy	Мено и >>			
No necropsy memos recorded on animal	nos recorded o	mine no	a.1	[]]] [1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
Tissue	<pre> // P Histopathologic diagnoses</pre>	ologic o	<< P		l o g y histologica	Observations 1 comments	^		
PARATHYROID	Required protocol tissue is missing.	protoco	tissue i	s missi	ng.			! ! !	
SALIVARY GLAND	INFLAMMATION, CHRONIC,	ION, CHE		ght, Mu	Slight, Multifocal.				

PATHOLOGY ANNEX B (cont.)

LETTERMAN ARMY DIV OF RES SUP PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	ESEARCH 94129	Individual Ani Study N	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	: 15-May-90 : 56
RAT/SPRAGUE-DAWLEY	WLEY		Study Start	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: of death:	86000616 147	Sex: Male Status: Interim sac	sacrifice 1	Group: 7 Terminal	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date	Day/week of St	Name	<pre></pre>	e i g h t s >> Relative % of Body Weight	Relative 1 of Brain Weight	Organ Status	1 1 1 1 4 5 8 8 8
05-May-87	147/21	LIVER	21.9	3.13	1042.9	Low	
05-May-87	147/21	HEART	1.6	0.23	1/6.2	Low	
05-May-87	147/21	BRAIN		0.30	100.0	Low	
05-May-87	147/21	ADRENAL GLAND:	60.07 ،	0.010	3.33		
05-May-87	147/21	SPLEEN	0.8 0.8	0.11	38.1		
Tissue	Finding, severity	9 >>	s q O s s o J	vation Free-Text C			
SPLEEN	NODULAR SURFACE, Mild	FACE, Mild	23	2X3MM NODULE ON THE VISCERAL SURFACE	RAL SURFACE.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
LIVER	ENLARGED, Trace CONGESTED, Trac	race Trace					
Tissue	Necropsy memos	<<	Necrops y	жево s >>			
No necropsy me	s recorded	animal			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	; ; ; ;	
Tissue	Histopathole	<< P a t h o Histopathologic diagnoses / Special	l o g y O histological	servations mments	^		
THYROID GLAND	CYST (S),	CYST(S), Slight, Multifocal.	. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	r	1		
SALIVARY GLAND	INFLAMMATION, CHRONIC,	Mila	itifocal.				
HEART	INFLAMMATION, CHRONIC,	N, CHRONIC, Slight.					
SPLEEN	INCREASED BI	INCREASED BROWN PIGMENT IN MACRO	IN MACROPHAGES, Mild.				
LIVER	INFLAMMATION, CHRONIC,	N, CHRONIC, MULTIFOCAL,	AL, Slight, Multifocal	cal.			

LETTERMAN ARMY INSTITUTE OF RI DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	Individua St	Individual Animal Data Dump Table Study Number: 86005	able	щ	PRINTED: 15-May-90 Page: 57
RAT/SPRAGUE DAWLEY	ĒΥ	Study	Study Start Date: 10-Dec-86	9	SUBCHRON	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00616 Day of death: 147	0061	6 Sex: Male Status: Interim sacrifice 1	Group: 7	Dos rminal body weigh	Dose level: ight (kms):	ie level: 10. (MG/KG)/day
Tissue	Histopathologic dlac	<pre><< Pathologic diagnoses / Special histological comments</pre>	Observati cal comments	Observations >>		1
KIDNEY	CORTICAL LYMPHOCYTE PROGRESSIVE RENAL DI	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Multifocal. PROGRESSIVE RENAL DISEASE, Slight, Multifocal.	ocal.		1	
EPIDIDYMUS	MICROCYSTIC CHANGE,	MICROCYSTIC CHANGE, EPITHELIUM, Slight.				
TESTIS	DEGENERATION, SEMINI	DEGENERATION, SEMINIFEROUS EPITHELIUM, Marked.	٠			
PANCREAS	INFLAMMATION, CHRONIC,	IC, Mild, Multifocal.				

CERVICAL LYMPH N Miscellaneous.
PLASMACYTOSIS, MEDULLARY, Slight.

Miscellaneous. MYOPATHIC CHANGE, Slight.

EXTRAOCULAR MM

LETTERMAN ARM DIV OF RES SUI PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FHANCISCO. CA 94129	E A RCH	Individual Anii Study N	Individual Animal Data Dump Table Study Number: 86005		PRINTED Page	PRINTED: 15-May-90 Page: 58
RAT/SPRAGUE-DAWLEY	AWLEY		Study Start	Study Start Date: 10-Dec-86	SUBCHI	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D Day of death: 147	00623	Sex: Male Status: Interim sacr	Gre sacrifice 1	Group: 7 Terminal	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date	Day/week of Study	Organ	Organ Weight (gms)	e i g h t s >> Relative % of Body Weight	Relative V of Brain Weight	Organ Status	
05-May-87 05-May-87	147/21	LIVER	19.8	2.91	0.006	Low	
05-May-87	147/21	HEART	1.8	0.26	168.2 81.8	j.	
05-May-87	147/21	BRAIN	2.2	0.32	100.0	Low	
05-May-87	147/23	ADRENAL GLANDS	0.07	0.010	3.18		
05-May-87	141/21	TESTIS	3.68 0.9	0.541 0.13	167.27		
Tissue	Finding, severity	ity << G r	s q O s s o	ervations >> Gross Free-Text Comments			
WHOLE BODY	NO LESIONS RECOGNIZED	OGN12ED		111111111111111111111111111111111111111	8	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
sue		*	Necropsy	мелов >>			
No necropay me	No necrojey memos recorded on animal	imal	\			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Tissue		_	o l o g y O al histological	bservations > comments	â		
PARATHYROID	Required protoc	Required protocol tissue is missing	ing.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	
SALIVARY GLAND	INFLAMMATION, CHRONIC,	CHRONIC, Mild, Multifocal	tifocal.				
HEART	CHRONIC MYOFIB	CHRONIC MYOFIBER DEGENERATION, Slight, Multifocal	light, Multifocal.				
LIVER	INFLAMMATION, CHRONIC,	-	MULTIFOCAL, Slight, Multifocal	al.			
PITUITARY GLAND		Required protocol tissue is missing.	ing.				

Animal: 86D00654 Sex: Male	Group: 7 Group: 7 Relative & Body Weigh - 2.83 0.48 0.25	Terminal body weight (kms): of Relative tof Brain Weight 163.2 84.2 100.0 1.05	CONIC/180 10. (0.65 0.65 Corgan Status Low Low Low Low	SUBCHRONIC/180 DAY FEEDING evel: 10. (MG/KG)/day kms): 0.65 Crgan Status Low Low Low Low Low Low
Sex: Male atus: Interim sacrif organ Name LIVER KIDNEY HEART BRAIN	Group: 7 We ights > Relative & Body Weigh 2.83 0.25 0.25 0.29 0.003	i oži	ا من	MG/KG)/day
Organ Name LIVER KIDNEY HEART BRAIN	W e 1 g h t s e	; ⇒ ₩;400000	Organ Status Low Low Low Low	1 1 1 1 1 1 1 1 1 1 1
1	0.25 0.25 0.29	968.4 163.2 84.2 100.0 1.05	Low	
c	0.48 0.25 0.29	163.2 84.2 100.0 1.05	LOW	
c	0.29	84.2 100.0 1.05	L L L L L	
•	0 003	1.05	. ₹	
		155 79		
	0.455	V		
SPLEEN 0.7	0.11	36.8		
<pre><< Gross 0 b Finding, severity</pre>	servations >> Gross Free-Text Comments	'n		
NO LESIONS RECOGNIZED	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
Necropsy memos	жево s >>			
RIGHT ADRENAL MISSING	. t ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !	! ! !	
p d es / S	bservations comments	\$		
INFLAMMATION, CHRONIC, Mild, Focal.	,			
HYPERPLASIA, BALT, Slight.				
INFLAMMATION, CHRONIC, MULTIFOCAL, Slight, Multi	focal.			
CORTICAL LYMPHOCYTE AGGREGATES, Slight, Multifocal	al.			
ON,	CHRONIC, MULTIFOCAL, Slight, MultilocYTE AGGREGATES, Slight, Multifoc	CHRONIC, MULTIFOCAL, Slight, Multifocal. HOCYTE AGGREGATES, Slight, Multifocal.	CHRONIC, MULTIFOCAL, Slight, Multifocal. OCYTE AGGREGATES, Slight, Multifocal.	CHRONIC, MULTIFOCAL, Slight, Multifocal. OCYTE AGGREGATES, Slight, Multifocal.

LETTERMAN ARMY DIV OF RES SUPE PRESIDIO OF SAN	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	<i>RCH</i> 29	Individual Animal Data Dump Study Number: 86005	ual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	PRINTED: 15-May-90 Page: 60
RAT/SPRAGUE-DAWI.EY	U.EY		Study Start	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 860 Day of death: 147	00660 Sta	Sex: Male Status: Interim sacrifice	1	Group: 7 Termin	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date	Day/week of Study		g a n W lute Organ ght (gms)	e i g h t s >> Relative % of Body Weight	Relative N of Brain Weight	Organ Status	
05-May-87	147/21	LIVER	2.0.5			!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	
05-MAY-87	147/21	KIONE	6.12		7.501	•	
05-May-87	147/21	HEART	- a	20.00	78.3	High	
05-May-87	147/21	BRAIN		3.0	0.00	Po.	
05-May-87	147/21	ADRENAL GLANDS	0.06	600.0	2.001	FO	
05-May-87	147/21	TESTIS	3.74	0.575	162.61		
05-May-87	147/21	SPLEEN	9.0	0.12	34.8		
Tissue	Finding, severity			ervations >> Gross Free-Text Comments	۲. د د		
WHOLE BODY	NO LESIONS RECOGNIZED	SNIZED				1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ð	Necropsy	*	Necropsy	Memos >>			
No necropsy memos	os recorded on animal	na l	1				
v		~ `	athology Ob Special histological co	bservations comments	^		
SPLEEN	INCREASED BROWN PIGMENT	1	IN MACROPHAGES, Slight.		· · · · · · · · · · · · · · · · · · ·	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
LIVER	VACUOLIZATION, F	VACUOLIZATION, FOCAL, Mild, Focal					
CECUM	GRANULOMA(S), SL	GRANULOMA(S), SUBMUCOSA, Moderate, Multifocal	, Multifocal.				
TURBINATES	INFLAMMATION, LY	INFLAMMATION, LYMPHOCYTIC, Slight, Multifocal	, Multifocal.				
CERVICAL LYMPH P	N Miscellaneous. PLASMACYTOSIS, MEDULLAR	HEDULLARY, Mild.					
MESENTERY	Miscellaneous. INFLAMMATION, GR	Miscellaneous. INFLAMMATION, GRANULOMATOUS, Moderate	rate.				

PRINTED: 15-May-90 Page: 61 SUBCHRONIC/180 DAY FEEDING	10. (MG/KG)/day 0.65	
Individual Animal Data Dump Table Study Number: 86005 Study Start Date: 10-Dec-86	Sex: Male Sex: Male Group: 7 Terminal body weight (kms): 0.65	<pre><< Pathologic diagnoses / Special histological comments ARTERITIS, CHRONIC, Marked.</pre>
LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	Animal: 86D00660 Sex: Male Day of death: 147 Status: Inte	Tissue Histopathologic diagnoses /

LETTERMAN ARM) DIV OF RES SUE PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	SEARCH 94129		In	dividual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRII	NTED: Page:	PRINTED: 15-May-90 Page: 62
RAT/SPRAGUE-DAWLEY	WI.EY				Study Start	Study Start Date: 10-Dec-86		SUBCHRONIC	/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D Day of death: 147	Animal: 86D00729 death: 147	Sex: Status:	Sex: Male Status: Interim sacrifice 1	acrifice	1 1 1 1 1	Group: 7	Dose lo	level: (kms): 0	10. ((MG/KG)/day
Date	Day/week of Study		Organ Name	Abso Wei	Organ We Absolute Organ Weight (gms)	ights >> Relative % of Body Weight	Relative & of Brain Weight	Organ	S S	
05-May-87			LIVER	1	17.9	2.75	942.1	Low	¦ 3	
05-May-87 05-May-87	147/21	KIE	KIDNEY HEART		3.5	0.54	184.2	•		
05-May-87	147/21	BR	BRAIN		6.	93.0	0.001	* :01 L	2 .	
05-May-87	147/21	ADF	ENAL GLAND	S	90.0	0.00	3.16			
05-May-87 05-May-87	147/21 147/21	TES	TESTIS		3.41	0.525	179.47			
•	•	;				11.0	0.00			
Tissue	Finding, severity	erity	9 >>	r o s s	Obser Gros	ervations >> Gross Free-Text Comments	ts			•
WHOLE BODY	NO LESIONS RECOGNIZED	ECOGN 1 2E	Q.	: ! ! ! !				f		1
Tissue		so	¥	e Z	ropsy	же в о s >>				
No necropsy me	No necropsy memos recorded on animal	animal	t t t t t t	! ! ! !	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			• • • • • • • • • • • • • • • • • • •		
Tissue	<< P	gic dìag	p es/	atholo Specialhis	athology Obs Special histological com	bservations comments	^			
THYROID GLAND	-	yht, Foc	al.		4 4 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	. 4	1		-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
SPLEEN	INCREASED BROWN PIGM	OWN PIGM		IN MACROPHAGES, MILD.	Mild.					

LETTERMAN ARMY DIV OF RES SUP PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	SEARCH	Individual Anin Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	15-May-90 63
RAT/SPRAGUE-DAWLEY	()		Study Start Date:	Date: 10-Dec-86	SUBCHI	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: Day of death:	86D00559 175 St	Sex: Male Status: Final sacrifice		Group: 8 Terminal body	Dose level: body weight (kms):	10. ((MG/KG)/day
Date	Day/week of Study	1	Absolute Organ	ights >> Relative % of Body Weight	Relative % of Brain Weight	Organ Status	
05-May-87	147/21	LIVER	18.4	2.79	876.2	Low	
05-May-87	147/21	KIDNEY HEART	3.5	0.53	166.7		
05-May-87	147/21	BRAIN	2.1	0.23	4.17	N 0.	
05-May-87	147/21	ADRENAL GLANDS	0.0	0.011	3.33	*	
05-May-87	147/21	SPLEEN	8/.0	0.118	37.14 38.1	Low	
Tissue	Finding, severity	4 6 r	sqo sso	ervations >> Gross Free-Text Comments			
LIVER	ENLARGED, Trace ABNORMAL PIGMENTATION	TATION	ACCE	ACCENTUATED ARCHITECTURE, ROUNDED EDGES	ROUNDED EDGES.		
TESTIS	ATROPHIC/SMALL,	ATROPHIC/SMALL, BILATERALLY, Mild		1X1.5CM			
Tissue	Necropsy memos	×	Necropsy	жево з >>			
No necropsy memos	recorded	mal			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		# # # # # # # # # # # # # # # # # # #
Tissue	<pre></pre>	<pre><< P a t h o diagnoses / Special</pre>	l o g y O histological	bservations > comments	^		
THYROID GLAND	CYST(S), Mild, Multifocal.	Multifocal.		†			
SALIVARY GLAND	INFLAMMATION, CHRONIC,	HRONIC, Mild, Focal	al.				
LIVER	INFLAMMATION, CHRONIC,		MULTIFOCAL, Slight, Multifocal	al.			
KIDNEY	CORTICAL LYMPHO	CORTICAL LYMPHOCYTE AGGREGATES, :	Slight, Multifocal.				
TESTIS	DEGENERATION, SI	EMINIFEROUS EPITH	DEGENERATION, SEMINIFEROUS EPITHELIUM, Marked, Diffuse	18e.			

LETTERMAN ARMY INSTITUTE OF RIDIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	Indivídua St	Individual Animal Data Dump Table Study Number: 86005	able	34	PRINTED: 15-May-90 Page: 64
RAT/SPRAGUE-DAWLEY			Study Start Date: 10-Dec-86	91	SUBCHRON	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00559 Day of death: 175	000559 Sex:		Group: 8	Dose level: Terminal body weight (kms):	Dose level: ight (kms):	10. (MG/KG)/day 0.66
Tissue	Histopathologic diac	<pre><< P a t h o l o g y 0 b s e r v a t l o n s >> Histopathologic diagnoses / Special histological comments</pre>	Observati cal comments		 	4 4 5 5 6 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
PANCREAS	INFLAMMATION, CHRON	INFLAMMATION, CHRONIC, Slight, Multifocal.	1	6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
EXTRAOCULAR MM	Miscellaneous. MYOPATHIC CHANGE, Slight.	light.				

Appendix O (cont.): PATHOLOGY

LETTERMAN ARMY DIV OF RES SUP PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	А ЯСН 129	Individual Ani	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	PRINTED: 15-May-90 Page: 65
RAT/SPRAGUE-DAWLEY	WLEY		Study Start	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00571 Day of death: 175	00571	Status: Final sacrifice		Group: 8 Termin	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date	Day/week of Study	Organ N	Organ Weight (gms)	e i g h t s >> Relative N of Body Weight	Relative & of Brain Weight	Organ Status	1
05-May-87	147/21	LIVER	17.7	2.53	842.9	Low	
05-May-87	147/21	KIDNEY Heart	3,3	0.47	157.1		
05-May-87	147/21	BRAIN	5.5	0.23	0.001	TON.	
05-May-87	147/21	ADRENAL GLANDS	90.0	0.00	2.86		
05-May-87 05-May-87	147/21 147/21	TESTIS SPLEEN	3.47	0.496 0.10	165.24 33.3		
Tissue	Finding, severity	< <p>4< G r</p>	esqo sso	ervations >> Gross Free-Text Comments	ر د ه		
KIDNEY	DILATED RENAL PELVIS, T	PELVIS, Trace	#I	THE PELVIS OF THE RIGHT KIDNEY IS	T KIDNEY IS 2 X 4 MM.	1 1 1 1	
đ.		*	Necropsy	Memos >>			
No necropsy men	No necropsy memos recorded on animal	ma	6			1	
Tissue	<< P		logy O histological	Observations I comments	^		
SALIVARY GLAND	INFLAMMATION, CHRONIC,	CHRONIC, Mild, Multifocal	1 focal.	; 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
KIDNEY	PROGRESSIVE REN DILATED RENAL P	PROGRESSIVE RENAL DISEASE, Slight. DILATED RENAL PELVIS, Present.					
PANCREAS	INFLAMMATION, CHRONIC,	HRONIC, Slight, Multifocal	ltifocal.				

LETTERMAN ARM: DIV OF RES SUE PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	А RСН 129	Individual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	PRINTED: 15-May-90 Page: 66
RAT/SPRAGUE-DAWLEY	AWLEY		Study Start	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D	00608	Status: Final sacrifice		Group: 8 Terminal	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date .	Day/week of Study	Organ	Organ We Absolute Organ Weight (gms)	ights >> Relative % of Body Weight	Relative & of Brain Weight	Organ Status	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
05-May-87	147/21	LIVER	16.6	3.13	721.7	Low	
05-May-87 05-May-87	147/21	KIDNEY	3.5	0.66	152.2	High	
05-May-87	147/21	BRAIN	2.3	0.28	0.001	# 0 F	
05-May-87	147/21	ADRENAL GLANDS	80,0	0.015	3.48	2	
05-May-87	147/21	TESTIS	3.07	0.579	133.48		
05-May-8/	14//21	SPLEEN	0.8	0.15	34.8		
Tissue	Finding, severity	4< G r	oss Obse Gr	servations >> Gross Free-Text Comments			
WHOLE BODY	NO LESIONS RECOGNIZED	OGNIZED		*	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Tissue	Necropsy memos	*	Necropsy	жево » >>			
No necropsy me	No necropsy memos recorded on animal	[ma]	.	, , , , , , , , , , , , , , , , , , ,	1		! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !
Tissue	<< P Histopathologic diagnoses /		athology Obser Special histological comments	vations	\$		
THYROID GLAND	CYST(S), Slight, Focal.	. Focal.	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	; 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
SPLEEN	INCREASED BROWN PIGMENT		IN MACROPHAGES, Slight.				
PANCREAS	INFLAMMATION, CHRONIC,	HRONIC, Mild, Multifocal.	ifocal.				

LETTERMAN ARM: DIV OF RES SUE PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	ARCH	Individual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 15-May-90 Page: 67	5-May-90
RAT/SPRAGUE-DAWLEY	AWLEY		Study Start	Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FEEDING	Y FEEDING
Animal: 860 Day of death: 175	00622	Male	Sacrifice	Group: 8 Terminal	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date	Day/week of Study	Crgan Name	<pre></pre>	ights >> Relative % of Body Weight	Relative & of Brain Weight	Organ Status	
05-May-87	147/21	LIVER				!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	
05-May-87	147/21	KIDNEY	7.57	24.0	1077.3		
05-May-87	14:/21	HEART		0.33	61.6		
05-May-87	147/21	BRAIN	5:4	3.5	97.00	PO.	
05-May-87	147/21	ADRENAL GLANDS	C	0.00	3 18	ro#	
05-May-87	147/21	TESTIS		010:0	2.18		
05-May-87	147/21	SPLEEN	0.8	0.12	36.4		
		· · ·	ross Obse	rvations >>			
Tissue	Finding, se			oss Free-Text Comme			•
WHOLE BODY	NO LESIONS RECOGNIZED	JGN I 2ED	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	;			
Tissue			Necropsy	жево s >>			
No necropsy memo	No necropsy memos recorded on animal	lmal				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Tissue	<pre></pre>	<pre><< P a t c diagnoses / Spe</pre>	athology Obs Special histological com	bservations; comments	^		
THYROID GLAND	CYST(S), Slight, Focal.	Focal.		:			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
HEART	INFLAMMATION, CHRONIC,	CHRONIC, Slight, Focal.	Focal.				
SPLEEN	INCREASED BROWN PIGMENT		IN MACROPHAGES, Slight.				
LIVER	INFLAMMATION, CHRONIC,		MULTIFOCAL, Slight, Multifocal.	. I.			
KIDNEY	CORTICAL LYMPHO PROGRESSIVE REN	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Multif PROGRESSIVE RENAL DISEASE, Slight, Multifocal.	CORTICAL LYMPHOCYTE AGGREGATES, Slight, Multifocal. PROGRESSIVE RENAL DISEASE, Slight, Multifocal.				
PANCREAS	INFLAMMATION, CHRONIC,	HRONIC, Moderate	Moderate, Multifocal.				

PATHOLOGY ANNEX B (cont.)

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	STITUTE OF PATH SERV RANCISCO, Y	» RESEARCH GP CA 94129	Individual Animal Data Dump Table Study Number: 86005 Study Start Date: 10-Dec-86	SUBCHR	PRINTED: 15- Page: 68 ONIC/180 DAY	PRINTED: 15-May-90 Page: 68 SUBCHRONIC/180 DAY FEEDING
Animal: 86000622 Sex: Day of death: 175 Status:	00622	ı	Male Dose level: 10. (MG/KG)/day Final sacrifice Group: 8 Terminal body weight (kms): 0.69	Dose level: Terminal body weight (kms):	10.	10. (MG/KG)/day
Tissue Histopathologic diadenter Clark	Histopath CYST(S),	1 5 1 -3	<pre>/< Pathologic diagnoses / Special histological comments CYST(S), PARS DISTALIS, Slight, Multifocal.</pre>	4		

LETTERMAN ARM DIV OF RES SUI PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	ARCH	Individual Anim Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	PRINTED: 15-May-90 Page: 69
RAT/SPRAGUE-DAWLEY	AWLEY.		Study Start	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D0 Day of death: 175	00651	Sex: Male Status: Final sacrifice	1 1 1 1 1 1 1 1 1 1 1 1	Group: 8 Terminal	Dose level: Terminal body weight (kms):		10. (MG/KG)/day 0.67
Date	Day/week of Study	Organ Name	Absolute Organ Weight (9ms)	ights >> Relative N of Body Weight	Relative % of Brain Weight	Organ Status	; 6 6 8 8 9 8 9 9
05-May-87	147/21		18.7	2.79	850.0	Low	
05-May-87	147/21	KIDNEY	3.4	0.51	154.5		
05-May-87	147/21	SBATE	٠, ١	0.24	72.7	Low	
05-May-87	147/21	ADRENAL GLANDS	2:2 0:0	60.00	100.0	Low	
05-May-87	147/21		3.36	0.501	152 73		
05-May-87	147/21	SPLEEN	8.0	0.12	36.4		
i		C C I	oss Obser	rvations >>			
Tissue	Finding, severity	ty	Gr	Gross Free-Text Comments			
WHOLE BODY	NO LESIONS RECOGNIZED	CNIZED	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1		9 1 1 1 1 1 1 1
Tissue	Necropsy memos	*	Necropsy	жево s >>			
Vo necropsy me	No necropsy memos recorded on animal	mal			*		
Tissue	<< Histopathologic diagnose	<pre></pre>	l o g y histologica	vations	^		
SALIVARY GLAND	i ·	INFLAMMATION, CHRONIC, Mild, Multifocal.	tifocal.		!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!		
LIVER	INFLAMMATION, C	HRONIC, MULTIFOCAI	INFLAMMATION, CHRONIC, MULTIFOCAL, Slight, Multifocal.	ai.			

PATHOLOGY ANNEX B (cont.)

CERVICAL LYMPH N Hiscellaneous. PLASMACYTOSIS, MEDULLARY, Moderate.

LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129	INSTITUTE OF 1 , PATH SERV GI FRANCISCO, CA	RESEARC	æ.		Individual An Study	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	: 15-May-90 : 70
RAT/SPRAGUE-DAWLEY	LEY	1	1 1 1 1		Study Star	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D0 Day of death: 175	86D00524 175	Sex: Status:	Sex: Male tus: Final	sacrifice		Group: 9 Termin	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date	of	Study	Organ Name	e v	Organ Meight (gms)	e i g h t s >> Relative % of Body Weight	Relative % of Brain Weight	Organ Status	
05-May-87	147/21			!	16.5	2.77	835.9	1 3	
05-May-87	147/21		KIDNEY		2.6	0.44	131.6		
05-May-8	14//21	- •	HEART		1.8	0.31	92.7		
05-May-87	147/21		BKAIN ADRENAI C	AT CLANDS	2.0	0.33	100.0	LOW	
05-May-87	147/21	•	TESTIS		2.80	0.009	141 30		
05-May-87	147/21		SPLEEN		1.0	0.16	49.1		
Tissue	Finding, severity	verity	¥	D F	sdO sso	servations >> Gross Free-Text Comments	>> nts		
WHOLE BODY	NO LESIONS RECOGNIZED	RECOGN	IZED	-		;	4		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	Necropsy memos	mo s		¥	Necropsy	же я о s >>			
ecropsy	s recorded on	anima	1	! ! ! !	1 1 1 2 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	;;			
Tissue	<< Histopathologic diagno	ogic di	<< P	* \	athology Ok Special histological o	bservations comments	^		
VARY GLAND		N, CHRC	,	Mild, Multifocal	ifocal.	· • • • • • • • • • • • • • • • • • • •			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
HEART	CHRONIC MYO.	FIBER (DEGENERAT	ION, SI	CHRONIC MYOFIBER DEGENERATION, Slight, Multifocal.				
SPLEEN	INCREASED B	ROWN PI	GMENT IN	MACROP	INCREASED BROWN PIGMENT IN MACROPHAGES, Moderate.				
LIVER	INFLAMMATION, CHRONIC,	N, CHRC		MULTIFOCAL,	, Slight, Multifocal	cal.			
KIDNEY	MINERALIZATION, PELVIS,	ION, PE		Marked.					
EPIDIDYMUS	MICROCYSTIC CHANGE, EPITHELIUM, MIld.	CHANGE	", EPITHE	LIUM, MI	11d.				
TURBINATES	INFLAMMATION, LYMPHOCYTIC, MILD.	N, LYMP	HOCYTIC,	Mild.					

PATHOLOGY ANNEX B (cont.)

LETTERMAN ARMY INSTITUDIV OF RES SUPP, PATH PRESIDIO OF SAN FRANCI: RAT/SPRAGUE-DAWLEY	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO, CA 94129 RAT/SPRAGUE-DAWLEY	± :	Indl	Individual Animal Data Dump Table Study Number: 86005 Study Start Date: 10-Dec-86 SUBCHRONIC/180 DAY FEEDING	rp Table		SUBCHRON	Page IC/180	PRINTED: 15-May-90 Page: 71 SUBCHRONIC/180 DAY FEEDING
Animal: 8600 Day of death: 175	7024	Sex: Male atus: Fina	Sex: Male Status: Final sacrifice	le Group: 9 Dose level: 10. (MG/KG)/day nal sacrifice Terminal body weight (kms): 0.60	Dose level: Terminal body weight (kms):	Dose weight	Dose level: ight (kms):	10.	10. (MG/KG)/day 0.60
Tissue	Histopathologic diagno	<pre>c diagnose</pre>	Pathologs / Special history	Pathology Observations >>> ses/Special histological comments	1008 >>				
Z	CERVICAL LYMPH N Miscellaneous. PLASMACYTOSIS, MEDULLARY, Mild.	MEDULLARY	, Mild.	RY, Hild.		 	; ; ; ; ; ; ;	i ! !	

LETTERMAN ARMI DIV OF RES SUE PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	EARCH 4129	Individual Anir Study No	Individual Animal Data Dump Table Study Number: 86005		PRINTED Page	PRINTED: 15-May-90 Page: 72
RAT/SPRAGUE-DAWLEY	AWLEY		Study Start	Study Start Date: 10-Dec-86	SUBCH	RONIC/180	SUBCHRONIC/180 DAY FEEDING
Animal: 86D Day of death: 175	00537	Status: Final sacrifice		Group: 9 Termina	Dose level: Terminal body weight (kms):	10.	(MG/KG)/day
Date	Day/week of Study		Organ We Absolute Organ Weight (gms)	ights >> Relative % of Body Weight	Relative % of Brain Weight	Organ Status	1 1 1 1 1 2 1 1 1 1
05-May-87	147/21	LIVER	21.3	3.69	905.2	1	
05-May-87	147/21	KIDNEY	3.6	0.63	154.6	High	
05-May-87	147/21	BRAIN	2.4	0.27	100.0	Low Low	
05-May-87	147/21	ADRENAL GLANDS	0.07	0.012	2.85	* 07	
05-May-87	147/21	TESTIS	3.82	0.662	162.22	High	
03-May-8/	147/21	SPLEEN	1.0	0.17	40.8		
9	:	1 9 >>	oss Obse	•			
Issue	Finding, severity	rıty	Gr	Gross Free-Text Comments			•
WHOLE BODY	NO LESIONS RECOGNIZED	COGNIZED			, , , , , , , , , , , , , , , , , , ,	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	Necropsy memus	*	Necropsy	же в о s >>			
No necropsy me	ø	ıima!	1 1 1 1 1 1 1 1 1 1 1 1		1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	<pre></pre>	_	l o g y O histological	bservations comments	^		
SPLEEN	INCREASED BROWN PIGMENT	IN PIGMENT IN MACROPI	IN MACROPHAGES, Mild.	1	:		
KIDNEY	MINERALIZATION, PELVIS,	N, PELVIS, Moderate.					
PANCREAS	INFLAMMATION, CHRONIC,	CHRONIC, Slight, Focal.	cal.				

LETTERMAN ARMY DIV OF RES SUP PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	SEARCH 94129	Individual Anin Study Nu	Individual Animal Data Dump Table Study Number: 86005		PRINTED: 1: Page: 7	15-May-90 73
RAT/SPRAGUE-DAWLEY	WLEY		Study Start	Start Date: 10-Dec-86	SUBCH	SUBCHRONIC/180 DAY FEEDING	Y FEEDING
Animal: Day of death:	86D00547 175 St	Sex: Male Status: Final sacrifice		Group: 9 Terminal body	Dose level: body weight (kms):	10. (MG 0.58	(MG/KG)/day
Date	Day/week of Study	<pre></pre>	<pre>A D r g a n W e Absolute Organ Weight (gms)</pre>	ight Relati Body	Relative & of Brain Weight	Organ Scatus	# # # # # # # # # # # # # # # # # # #
05-May-87	147/21		19.0	3.26	928.4	Low	
05-May-87	147/21	HEART	3.5 5.5	0.60	171.1	High	
05-May-87	147/21	BRAIN	2.0	0.35	100.0	Log	
05-May-87	147/21	ADRENAL GLANDS	90.0	0.011	3.12	İ	
05-May-87	147/21	SPLEEN	9:08 0.8	0.13	1/4.// 37.5		
Tissue	Finding, severity	<. G r	s q O s s o	ervations >> Gross Free-Text Comments			
WHOLE BODY	NO LESIONS RECOGNIZED	RECOGNIZED				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Tissue	Necropsy memos	*	Necropsy	жево s >>			
ropsy m		imal	1	1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	† ! !
Tissue	Histopathologic diagnos	<pre><< p a t h o] c diagnoses / Special</pre>	ogy o histological	bservations comments	^		
PARATHYROID	Required protocol tissu	col tissue is missing	ing.				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
SALIVARY GLAND	INFLAMMATION, CHRONIC,	CHRONIC, Mild.					
SPLEEN	INCREASED BROWN PIGMENT	N PIGMENT IN MACROPHAGES,	PHAGES, Moderate.				
KIDNEY	PROGRESSIVE RENAL DISEASE,	NAL DISEASE, Slight.	į.				
EPIDIDYMUS	MICROCYSTIC CHI	MICROCYSTIC CHANGE, EPITHELIUM, Mild, Focal.	Mild, Focal.				
PANCREATIC LN	Miscellaneous. BROWN PIGMENT 1	Miscellaneous. BROWN PIGMENT IN MACROPHAGES, Moderate.	derate.				

LETTERMAN ARM) DIV OF RES SUE PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	А RCH 129	Individual Ani Study N	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:): 15-May-90 e: 74
RAT/SPRAGUE-DAWLEY	WLEY		Study Start	Start Date: 10-Dec-86	าร	BCHRONIC/18	SUBCHRONIC/180 DAY FEEDING
Animal: Day of death:	86D00591 175	Status: Final sacrifice	1 1 1 1 1 1 1 1 1 1 1 1	Group: 9 Terminal	Dose level body weight (kms)	el: 10.	(MG/KG)/day
Date .	Day/week of Study	Z	Organ Absolute Organ Weight (gms)	e i g h t s >> Relative % of Body Weight	Relative & of Brain Weight	Organ	
78-X4M-20	147/21			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	j 	
05-May-87	147/21	LIVER	24.3	13. 12.	1167.8	Low	
05-May-87	147/21	HEART			7.977	ų,	
05-May-87	147/21	BRAIN	2.0	7.50	4.4.4	MOT.	
05-May-87	147/21	ADRENAL GLANDS	90.0	83:0	2.79	*O*T	
05-May-87	147/21		3.59	004.0	172 60		
05-May-87	147/21	SPLEEN	0.4	0.06	19.7		
Tissue	Finding, severity	<< G r ity	s q 0	ervations >> Gross Free-Text Comments	\$ S		
KIDNEY	CYST(S)	1			; ; ; ; ; ; ; ; ; ; ; ;		
Tissue	Necropsy memos	¥	Necropsy	же в о s >>			
No necropsy memos	mos recorded on animal	mal		1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	Histopathologic diagnose	<pre><< Path </pre>	ology 0	bservations	^		
			•				
SALIVARY GLAND	INFLAMMATION, CHRONIC, S	HRONIC, Slight, Multifocal	ltifocal.				! ! ! ! !
LACRIMAL GLAND	INFLAMMATION, CHRONIC, S.	HRONIC, Slight, Focal	cal.				
SPLEEN	INCREASED BROWN PIGMENT	PIGMENT IN MACROPHAGES,	HAGES, Mild.				
KIDNEY	PROGRESSIVE REN	PROGRESSIVE RENAL DISEASE, Mild.					
PANCREAS	INFLAMMATION, CHRONIC, Mi	HRONIC, Mild, Multifocal	ifocal.				
PITUITARY GLAND	D Required protocol tissue	ol tissue is missing.	ng.				

PATHOLOGY ANNEX B (cont.)

LETTERMAN ARMY DIV OF RES SUP PRESIDIO OF SA	LETTERMAN ARMY INSTITUTE OF RESEARCH DIV OF RES SUPP, PATH SERV GP PRESIDIO OF SAN FRANCISCO. CA 94129	.ARCH	Individual Anima Study Nun	Individual Animal Data Dump Table Study Number: 86005		PRINTED: Page:	: 15-May-90 : 75
RAT/SPRAGUE-DAWLEY	WLEY		Study Start Date:	ate: 10-Dec-86	SUBCHI	SUBCHRONIC/180	DAY FEEDING
Animal: Day of death:	6D00518 75	: X ≟ i	Group:	ip: 9 Terminal body	Dose level: body weight (kms):	10.	(MG/KG)/day
Date	Day/week of Study	Organ Name	Organ We Absolute Organ Weight (gms)	!	Relative % of Brain Weight	Organ Status	! ! ! ! !
02-Jun-87 02-Jun-87		LIVER	23.0	3.30 0.57	1123.0	Low	
02-Jun-87 02-Jun-87 02-Jun-87	175/25 175/25 175/25	HEART BRAIN ADRENAL GLANDS	1.8 2.1 0.06	0.25 0.29 0.08	86.3 100.0	Low	
02-Jun-87 02-Jun-87	175/25 175/25	TESTIS SPLEEN	3.74 0.8	0.536	182.55 37.5		
Tissue	Finding, severity	1 9 >>	oss Obser Gross	rvations >> ss Free-Text Comments			,
WHOLE BODY	NO LESIONS RECOGNIZED	RECOGNIZED	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1		
Tissue	Necropsy memos	>>	Necropsy	же ж о s >>			
No necropsy memos	recorded o	lmal		; † † † † † † † † † † † † † † † † † † †	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	; 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Tissue	<pre></pre>	ses / Speci	l o g y O histological	bservations > comments	^		
THYROID GLAND	CYST(S), Slight, Focal	Focal.		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	·		!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
SPLEEN	INCREASED BROWN	INCREASED BROWN PIGMENT IN MACROPHAGES,	AGES, Slight.				
KIDNEY	PROGRESSIVE REN	PROGRESSIVE RENAL DISEASE, Mild.					
PANCREAS	INFLAMMATION, CHRONIC,	HRONIC, Mild, Multifocal	focal.				
SKIN	INFLAMMATION, CHRONIC,	HRONIC, Moderate.					
EYES & OPTIC N.	Required protocol tiss	ol tissue not examined.	ned.				

PATHOLOGY ANNEX B (cont.)

Miscellaneous. PLASMACYTOSIS, MEDULLARY, Mild.

CERVICAL LYMPH N

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RAT/SPRAGUE-DAWLEY	RAT/SPRAGUE-DAWLEY		Study Start Date: 10-Dec-86		SUBCHRONIC/	SUBCHRONIC/180 DAY FEEDING
Animal: 86D00518 Day of death: 175	00518		Group: 9 Dose level: 10. (MG/KG)/day acrifice Terminal body weight (kms): 0.70	Dose level: Terminal body weight (kms):	Dose level: 1 ight (kms): 0.	10. (MG/KG)/day 0.70
Tissue	< <p>Histopathologic diagnose</p>		Pathology Observations >>		1 1 1 1 1 1 1 1 1	
PREPUTIAL GLAND	Miscellaneous. INFLAMMATION, CHRONIC,		ild, Multifocal,	1	1 1 1 1 1 1 1 1	# :

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